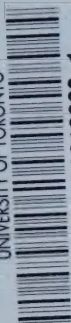


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References: 1. Ostrom, C.A. et al., J Dent Res, 56(3):212-221, 1977. 2. Arends, J., ten Cate, J.M., J Cryst Gro, 53:135-147, 1981. 3. Silverstone, L.M., Caries Res, 11 (Suppl. 1):59-84, 1977. 4. Data on file at Procter & Gamble, Inc. 5. Mobley, M.J., J Dent Res, 60(12):1943-1948, 1981. For further information, please contact Crest Professional Services, P.O. Box 355, Station A, Toronto, Ontario M5W 1C5

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Canadian Dental Association
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CDA: IT WORKS

FOR ALL OF US

That title is a direct steal from the United Way. This editorial is about just that — dentistry and getting the job done the united way.

As another national convention approaches, it seems appropriate to remind readers just how CDA is working for you. After all, you wouldn't support an organization that wasn't doing anything for the community, would you? Just what has your national organization done so far this year for you? CDA is helping the public, the profession and government know that dentists are a highly motivated, caring and dedicated group of health professionals.

The profession has been given a major concession by Revenue Canada, through the efforts of your national association. The CDA has been successful in getting a policy change for dental management companies after two years of hard fought negotiations with Revenue Canada. The profession is also helped enormously, if somewhat invisibly, by such quality assurance programs as the Dental Aptitude Test and the entire accreditation process. Both DAT and Accreditation only affect dental training but would you want your partner or a member of your dental team to have come through a system without either one? Only a national association can successfully make these quality assurance programs work. And they do work.

The public is getting a good look at Canadian dentistry through the Dental Awareness Program (DAP). The program is proving highly successful in its first phase. DAP is making the profession visible and dentistry a viable part of health maintenance for increasing numbers of health conscious Canadians. The Dental Awareness Program is a CDA commitment to dentistry and the public. Through the DAP, CDA hopes to help combat the empty chair syndrome and make Canadians healthier. Only the national association for dentistry could have made the DAP work. And it works.

Even government is beginning to sit up and take notice of dentistry. Witness the final success with Revenue Canada and the management companies. Witness CDA's continuing lobby on behalf of dentistry on every concern from the Canada Health Act on down. Witness all the briefs submitted, conferences and meetings with officials made by CDA on your behalf that most dentists never think about, let alone witness. Only a national association can exert the influence on your behalf at the federal department level. And it is working.

Did I just hear someone say "So what else is new?" As the news arm of your national association, no one ever said we had to print just "what's new." There is nothing new in pointing out what your national association does every day for Canadian dentistry. Yet as another national dental convention approaches — this year in our national capital — the yearly activities and achievements of your national association bear repeating. And if you don't believe that these activities help you in any way, then try to imagine what life would be like with an unaware public, no quality assurance in the profession and no support from the federal government. And if you would like to see and hear just what CDA actually does for you — in its natural habitat — then come to Ottawa in the fall and find out. You'll learn why CDA headquarters is based in the Capital.

Carolyn Hackland, Editor CDA Journal

INCORPORATION OF DENTAL PRACTICES IN BRITISH COLUMBIA

John N. Gregory, LLB

Note: The CDA Taxation Committee has been monitoring the incorporation of dental practices in B.C. with interest. Mr. Gregory practises tax law with the firm of Thorsteinsson, Mitchell, Little, O'Keefe & Davidson, of Vancouver, B.C., and has been actively involved in the process of incorporating dental practices. At the request of the Taxation Committee, he has kindly provided this informative article.

Dr. Robert N. Hicks, Chairman
CDA Taxation Committee.

A. Introduction

Dentists practising in the various provinces other than Alberta have traditionally been prohibited from incorporating their dental practices. These prohibitions arise either from specific provisions of the provincial legislation governing the profession or the refusal of the provincial licensing bodies to permit the incorporation of dental practices. In response to these prohibitions many dentists chose to incorporate management companies to achieve some of the benefits of incorporation. The management companies would normally be owned by the dentist or the dentist's spouse and would perform management services for the dentist in return for a fee equal to the overhead expenses plus a mark-up (normally of approximately 15%). However, the tax advantages from use of a management company run a poor second when compared to the incorporation of a dental practice and may give rise to challenges by the Department of National Revenue which would not arise in the case of an incorporated dental practice.

Recent amendments to the small business taxation scheme have further enhanced the tax advantages to incorporating a dental

practice. The first \$200,000 of professional income earned by a company is now eligible for the small business tax rate which in most provinces equals 25%. Previously the corporate tax rate applicable to professional income earned by a company ranged from 33 $\frac{1}{3}$ % to 39 $\frac{1}{3}$ %.

The professional associations in most provinces are now actively lobbying the provincial governments and licensing bodies to remove the prohibitions against incorporation of dental practices. Recently, the College of Dental Surgeons of British Columbia adopted a procedure whereby a dentist may apply for the consent of the College to the incorporation of his or her dental practice. The consent of the College is granted under a provision of the *Dentists Act* of B.C. which prohibits a company from carrying on the practice of dentistry without the consent of the College. Many dentists in B.C. are now taking advantage of this tax planning opportunity and incorporating their practices.

This article will focus on the incorporation of dental practices in B.C. with a view to providing information which will be of interest to dentists in other provinces which are actively considering replacing the prohibitions against incorporation with a procedure similar to the procedure adopted in B.C. This article will address four topics; the concept of incorporating a dental practice, the steps in incorporating a dental practice in B.C., the tax advantages of incorporation, and the tax disadvantages of incorporation.

B. Concept

The concept of a dental incorporation is really no different from the incorporation of any other business. The dentist will simply transfer the good will and other assets associated with his dental practice to a company in which the dentist and, perhaps, the dentist's spouse and children are shareholders. The dentist will be a director and officer of the company. The company carries on the dental practice by employing the dentist to provide professional services. The dentist's spouse may also be employed by the company to perform bookkeeping and other administrative functions.

If the dentist already has a management

company, often this company will simply be reorganized and the dentist's goodwill will be transferred from the former management company. As the former management company normally owns or leases the furniture and equipment used in the dental practice, there is no need to transfer any other assets to the company.

C. Steps in Dental Incorporations

There are essentially four steps in incorporating a dental practice in B.C.:

1. Application to the College of Dental Surgeons.
2. Incorporation of the company or reorganization of the former management company.
3. Transfer of the dental practice to the company.
4. Employment of the dentist and, perhaps, the dentist's spouse by the company.

The first step in incorporating a dental practice in B.C. is for the dentist to make an application to the College of Dental Surgeons for the consent of the College to the incorporation. The College requires certain undertakings from the dentist to the effect that only a member of the College may hold voting shares or act as a director or president of the company, and that only a member of the College and his or her immediate family may hold non-voting shares. In addition, the College requires that the dentist undertake to indemnify the company for all liabilities arising in respect of the dental practice being carried on by the company. Most of these undertakings are required to be included as restrictions in the Articles of the company.

The second step in a dental incorporation is to incorporate a company with the appropriate Articles and capital structure. The company is incorporated under the B.C. *Company Act* and, unlike Alberta professional corporations, is subject to no special statutory restrictions. If the professional already has a management company, the management company will often be reorganized so that it complies with the requirements of the College. The name chosen for the new company or the reorganized management company is subject

to guidelines imposed by the College. Typical company names include "Dr. John Smith Inc.", "Dr. J.R. Smith Inc.", or simply "J.R. Smith Inc."

The third step in the dental incorporation is to transfer the goodwill and other assets associated with the dental practice to the corporation on a tax-deferred basis. If the company was formerly the management company for the dentist, normally the "hard" assets will already be held by the company. In the case of a new company, however, the "hard" assets must either be transferred to or leased by the company.

The fourth and final step in a dental incorporation is for the company to enter into a formal written employment agreement with the dentist and, if appropriate, with the dentist's spouse. Whether the spouse is employed by the company will depend on whether he or she performs any services for the company which can justify payment of a salary. If the spouse has a significant independent source of income, then it may be inappropriate to pay him or her an additional salary. The employment agreement must be carefully drafted to ensure that the dentist is, in fact, an employee of the company and that all billings for dental services are made for the account of the company.

D. Tax Advantages

The advantages of incorporating a dental practice arise primarily from the opportunities for deferral and income splitting.

The deferral advantage arises from the differential between the rate of tax paid by the company and the rate of tax which would have been paid by the dentist had he or she earned the income personally. The deferral advantage only applies to earnings retained in the company for investment or other purposes. The amount of tax deferred by the retention of earnings in the company will become payable when the earnings are eventually distributed to the dentist as salary or dividends. In effect, the deferral advantage represents an interest free loan from Her Majesty. The longer the distribution is postponed, the lower the discounted present value of the deferred tax. In addition, the deferred tax may be reduced if the distribution is made in a year or years in which the dentist's personal tax rate is lower (for example, during a sabbatical or after retirement).

In B.C. the company will pay an effective rate of tax of 23% on the first \$200,000 of professional income. Assuming the dentist would have otherwise been in the 52% tax bracket (the top marginal rate for 1985 in B.C. is approximately 51.77%), the deferral advantage totals approximately 29% for every dollar retained in the company.

Schedule A illustrates the deferral

SCHEDULE A

DEFERRAL ADVANTAGE

(federal and B.C. provincial tax at 1985 rates)

Net Income from Practice	\$100,000	\$150,000	\$200,000
Less:			
Salary to Dentist	60,000	60,000	60,000
Taxable Income in Company	40,000	90,000	140,000
After-Tax Income of Company			
Available for Investment by Company	\$ 30,800	\$ 69,300	\$107,800
After-Tax Income of Dentist			
Available for Personal Living Expenses	\$ 37,520	\$ 37,520	\$ 37,520
Deferral Advantage			
Total Personal Tax if Practice			
Not Incorporated	\$ 43,057	\$ 68,944	\$ 94,830
Less:			
Total Corporate and Personal Tax			
If Practice Incorporated	\$ 31,680	\$ 43,180	\$ 54,680
Deferral Advantage	\$ 11,377	\$ 25,764	\$ 40,150

SCHEDULE B

INCOME SPLITTING ADVANTAGE

(federal and B.C. provincial tax at 1985 rates)

Net Income from Practice	\$100,000	\$150,000	\$200,000
Less:			
Salary to Dentist	60,000	60,000	60,000
Taxable Income in Company	40,000	90,000	140,000
After-Tax Income of Dentist and Spouse			
Available for Personal Living Expenses	\$ 62,903	\$ 91,611	\$117,384
Income Splitting Advantage			
Total Personal Tax if Practice			
Not Incorporated	\$ 43,057	\$ 68,944	\$ 94,830
Less:			
Total Corporate and Personal Tax			
If Practice Incorporated	\$ 37,097	\$ 58,389	\$ 82,616
Income Splitting Advantage	\$ 5,960	\$ 10,555	\$ 12,214

SCHEDULE C

DEFERRAL AND INCOME SPLITTING ADVANTAGES

(federal and B.C. provincial tax at 1985 rates)

Net Income from Practice	\$100,000	\$150,000	\$200,000
Less:			
Salary to Dentist	60,000	60,000	60,000
Taxable Income in Company	40,000	90,000	140,000
After-Tax Income of Company			
Available for Investment by Company	20,000	40,000	60,000
After-Tax Income of Dentist and Spouse			
Available for Personal Living Expenses	\$ 46,506	\$ 60,998	\$ 74,641
Deferral and Income Splitting Advantages			
Total Personal Tax if Practice			
Not Incorporated	\$ 43,057	\$ 68,944	\$ 94,830
Less:			
Total Corporate and Personal Tax			
If Practice Incorporated	33,494	49,002	65,359
Deferral and Income Splitting Advantages	\$ 9,563	\$ 19,942	\$ 29,471

advantage for dentists earning an annual net income of \$100,000, \$150,000 and \$200,000 respectively. In each case the dentist is assumed to require an annual salary of approximately \$60,000 to cover personal living expenses. Whether the dentist extracts the distribution by way of dividends or salary is essentially neutral; the total of the corporate and personal tax paid on distributions by way of dividends is approximately equal to the personal tax paid on distributions by way of salary. For the purposes of simplicity, the distribution is assumed to be by way of salary only, and any personal deductions are ignored as these will be available to the dentist whether or not the dental practice is incorporated.

The deferral advantage is quite significant even for the \$100,000 income earner. At a fixed salary, the higher the net income, the greater the deferral advantage. Conversely, the higher the salary, the fewer dollars available for retention in the company and the lower the deferral advantage.

The advantage of income splitting arises from the opportunity for the dentist to "split" income with other low-rate taxpayers by including members of his or her immediate family as shareholders in the company. Usually the spouse and children will hold non-voting participating shares. If infant children are involved, a family trust is often used to hold the shares for the children. It should be noted that B.C. dentists enjoy a significant advantage in this respect over their counterparts in Alberta. The legislation permitting Alberta dentists to incorporate does not permit shareholders in the company other than the dentist and accordingly there is no opportunity for direct income splitting. B.C. dentists are under no such restriction.

Schedule B illustrates the income splitting advantage for dentists earning an annual net income of \$100,000, \$150,000 and \$200,000 respectively under the assumption that all earnings of the company after payment of a salary of \$60,000 to the dentist are to be distributed by way of dividends. There is no deferral advantage illustrated in these examples. The salary of \$60,000 is included in the examples as in most dental incorporations involving other family members a reasonable salary must be paid to the dentist to legitimize the arrangement for tax purposes. The spouse is assumed to have no other source of income and the split of the participating shares between the spouse and the dentist is assumed to be 70%/30% in the case of the \$100,000 dentist, 60%/40% in the case of the \$150,000 dentist, and 50%/50% in the case of the \$200,000 dentist. Again any personal deductions by the dentist or the spouse have been ignored.

The income splitting advantage is quite significant at all three income levels. The addition of another low rate taxpayer in the form of a trust for the dentist's children will further enhance the income splitting advantage.

Schedule C serves to illustrate the combination of the deferral advantage and the income splitting advantage in the case of the three dentists considered above. The same assumptions have been made as in Schedules A and B except that the \$100,000 dentist is assumed to retain \$20,000 in the company for investment or other purposes, the \$150,000 dentist is assumed to retain \$40,000, and the \$200,000 dentist is assumed to retain \$60,000. These examples are most typical as normally a dentist will be able to utilize both the deferral and income splitting advantages.

Many dentists currently employ tax planning mechanisms in the form of management companies or the payment of salaries to their spouses. There are several advantages to incorporating a dental practice as compared to the use of a management company or simple payment of a salary to a spouse.

1. In the case of a management company, the amount of income splitting is restricted to the profit element of the fee for management services, which is usually represented by a 15% mark-up on overhead. Income splitting in the case of payment of a salary to the dentist's spouse is restricted to the amount of a reasonable salary. However, in the case of a dental incorporation, the entire amount of the professional income after payment of a reasonable salary to the dentist is available for income splitting by way of dividends.

2. In the case of a management company there is always the issue of the reasonableness of the management fee. The Department of National Revenue is currently engaged in a special assessing project and is actively reassessing management company arrangements on this basis. This issue does not arise in the case of a dental incorporation as the management function is performed by the same company which earns the professional income.

3. In the case of payment of a salary to the dentist's spouse, there is the issue of the reasonableness of the salary. In the case of a dental company, the income may be "split" by way of dividends and there is no need to pay a salary. However, if the spouse does perform services for the company, then the option still exists to have the company pay a salary to the spouse. In addition, a higher salary can be justified if the spouse becomes an officer of the company.

4. A dental incorporation affords the opportunity to include a trust for infant children as a shareholder in the company. Although a family trust may be a shareholder in a management company, the advantage is limited because the ability to "transfer" income to the management company is restricted to a reasonable mark-up on overhead.

5. The deferral advantage in the case of a management company is only available to the extent of the reasonable mark-up on overhead. Obviously the deferral advantage is not available in the case of simple payment of a salary to a spouse.

E. Tax Disadvantages

The tax disadvantages associated with a dental incorporation are minimal. However, careful planning is required to ensure that the dentist minimizes the disadvantages and avoids unnecessary risks.

The major disadvantages of dental incorporations are the following:

First, the incorporation of a dental practice gives rise to a more complicated business structure. There may be additional administrative costs incurred by the dentist in maintaining his or her accounting system. The corporation must file an income tax return and, perhaps, additional income tax returns will have to be filed by the spouse and a family trust for the dentist's children.

Second, most dentists have taken advantage of the ability to defer the recognition of professional income by choosing a year end for their practices of, say, January 31. If the dentist incorporates his or her dental practice and proceeds to withdraw a salary from the company during the same calendar year, the dentist may face the problem of "doubling-up" this salary income on top of the previous year's practice income. With careful tax planning through the use of deferred bonuses and shareholder loans from the company, the dentist can substantially avoid this problem.

Third, dentists who were in practice in 1971 may be carrying a rollover of certain receivables on their books which resulted from the tax reform requiring professionals to account for receivables on an accrual basis. The amount of 1971 receivables which has been rolled over annually by the dentist must be recognized as income in the year in which the incorporation occurs. This is normally not a very large number although consideration must be given to each dentist's individual circumstances.

Fourth, incorporation may not be advantageous for dentists who practice in partnerships. Although a partner may transfer his or her partnership interest to a company, the company must share the \$200,000 limit on professional income eligible for the small

business tax rate with the other partners (whether or not the other partners are companies). Accordingly, in multi-member dental partnerships the amount of income of a corporate partner which is eligible for the small business tax rate may be significantly reduced. Under certain circumstances, the reduction may be so significant so as to neutralize the advantages of incorporation. In these cases, the dentists may consider dissolving the partnership and substituting a cost-sharing arrangement.

Finally, as previously discussed, the advantages of incorporating a dental practice arise primarily from deferral and income splitting. If a dentist has no low-rate taxpayers with which to split the professional income there will be no income splitting advantage to incorporation. In addition, if the dentist requires substantially all of his or her professional income for personal and living expenses, there will be no deferral advantage. Under these circumstances, it would likely be inappropriate for the dentist to incorporate the dental practice.

As with most areas of tax planning, there are certain risks inherent in a dental incorporation. However, if the incorporation of the practice is properly carried out and the dentist follows proper business and accounting procedures following the incorporation, then the Department of National Revenue has acknowledged that the incorporation will be effective for tax purposes.

F. Conclusion

The incorporation of a dental practice provides a very attractive form of tax planning for members of the dental profession. The traditional tax planning mechanisms such as the management company and payment of a salary to a spouse cannot offer the same opportunities as the incorporation of a dental practice. In general the advantages of incorporating a practice far outweigh the disadvantages to the dentist. In addition, the level of risk is minimal where the dentist has properly structured the incorporation and follows proper accounting and business procedures.

The recent developments in the area of dental incorporations in B.C. are a welcome change from the traditional barriers which have prevented the dental profession from taking advantage of the taxation scheme available to other small businessmen. It is hoped that other provincial governments and licensing bodies will follow the leads of B.C. and Alberta in removing the discriminatory treatment of members of the dental profession.

John N. Gregory, of Thorsteinsson, Mitchell, Little, O'Keefe & Davidson, Barristers & Solicitors, P.O. Box 49123, 27th Floor, Three Bentall Centre, 595 Burrard Street, Vancouver, British Columbia, V7X 1J2, 688-1261.

'TURF' BATTLES BY HEALTH PROFESSIONALS, PREDICTED

Those who attended a recent seminar on pharmacy and health care in the 1980s foresaw the possibility of territorial disputes among health care professionals in the future.

As tension mounts to keep a ceiling on costs, health care providers may begin to look past their traditional roles — often moving into one another's territories — to find ways to make their services more competitive and attractive to the public.



Dr. Donald E. Bentley, past president of the American Dental Association, speaks at the first symposium on "Pharmacy and Health Care: Impact in the '80s." A second symposium is scheduled October 5-8 in Phoenix, Arizona.

Teamwork urged

Dr. Donald E. Bentley, past president of the American Dental Association, said at the Florida session, the time has come for health professionals to decide whether to be "statesmen or political animals." He called for more team work among professionals to resolve problems, noting that "we must achieve a higher level of interprofessional cooperation and understanding so that the public is best served in our mission."

Among the "turf" issues raising the greatest concern was the blurring of prescriber and dispenser roles. For example, while most physicians do not look toward dispensing as a function they would like to take on, "it could be a recourse" if pharmacists expand into prescribing in the United States, stressed Dr. Harmon Holverson, immediate past president of the American Academy of Family Physicians. He also indicated opposition to generic and therapeutic substitution by pharmacists.

From the consumer's point of view, who dispenses isn't important, noted Frances West, secretary of the Delaware Department of Consumer Affairs. She suggested, however, that there is a need for more counseling on drugs, a role the pharmacist is well-suited to fill — and one which pharmacists admitted might limit dispensing by non-pharmacists.

In addition, new groups are joining the health care system and are moving into areas traditionally dominated by others. For example, the president of the American Academy of Physician Assistants, said that members of her group have the knowledge and training to enable them to prescribe and dispense. At that same time, she said PAs are vital to health care delivery because they relieve the physician of routine tasks, a contention of concern to physicians who are worried about an over supply of manpower as represented by PAs and other health care extenders, such as nurse practitioners.

New opportunities for collaboration

As seminar participants wrestled with turf battles, some health care leaders said that the emerging system would create more, not less, opportunities for better working relationships. The editor of a nursing publication said that changes in nursing will bring groups closer together. In particular, she saw "greater demands on pharmacists to provide services to nurses." Such services might include counselling in hospitals, where budget reductions cut nursing staffs, and in neighborhood "mini health centres" where growing numbers of home health care nurses can learn more about new medications, technology and equipment.

Similarly, a new partnership among pharmacists and dentists was predicted by Dr. Bentley. Citing examples such as the growing use of prescription medicines to treat dental problems, he said that dentists and pharmacists are "equally responsible for ensuring that our patients fully understand the nature of drug treatment," adding that "if we pool our resources and share our wisdom, there is no challenge we can't overcome."

The seminar, sponsored in part by the publication "American Druggist", brought together national pharmacy leaders and representatives from medicine, nursing, physician assistants, dentistry, third party, hospital, government and consumer groups in the United States. It was designed to help pharmacists understand the concerns and motivations of other professionals in the changing health care delivery system, and what this means for pharmacists in the future.

CDA RESOURCE CENTRE:
ANNUAL REPORT
JANUARY TO
DECEMBER 1984

The CDA Resource Centre, under the direction of head librarian Trudi DiTrollo, continues to be one of CDA's most popular member services. Statistics show that members and non-members alike, find the

Resource Centre useful for a variety of purposes.
According to Mrs. DiTrollo, the General Practitioner Dentist classification still remains the largest user group. "A notable change,

TABLE I
User Categories

January – December 1984													
	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Dentists	156	194	253	163	171	143	70	116	115	171	163	134	1849
Staff	31	36	27	23	34	36	43	37	61	49	45	16	438
Students	12	16	19	2	17	10	12	7	75	126	105	81	482
Corporate	—	—	—	—	2	—	—	—	—	—	—	1	3
Council/Committee	—	—	2	—	1	1	—	—	—	4	10	1	19
Dental Bodies	6	3	1	—	—	1	—	6	4	1	2	—	24
Hosp/Health/Army	10	8	30	3	8	8	10	19	44	20	19	14	193
University	5	7	1	3	10	3	3	2	2	12	9	—	57
Auxiliary	2	2	4	5	8	2	2	5	4	13	8	6	61
Industry	1	2	—	—	1	—	—	2	—	1	2	—	9
Public	—	4	3	4	6	6	7	1	2	6	2	3	43
NDEB	1	—	—	2	2	2	5	19	10	3	2	3	49
Government	1	—	2	—	1	1	—	3	1	1	1	1	12
Library	3	7	5	6	6	12	4	2	6	4	3	4	62
Others	2	1	—	—	—	—	—	—	2	1	13	8	27
Total	230	280	341	211	267	225	156	219	326	412	384	278	3328

TABLE II

April 1981 - December 1983		January - December 1984	
Dentists	1270 Requests	Dentists	1849 Requests
Staff	457 Requests	Students	482 Requests
Hosp/Health/Army	147 Requests	Staff	438 Requests
Libraries	100 Requests	Hosp/Health/Army	193 Requests
Students	91 Requests	Library	62 Requests
Council/Committee	62 Requests	Dental Bodies	24 Requests
Public	50 Requests	Council/Committee	19 Requests
Auxiliary	47 Requests	Government	12 Requests
University	46 Requests	Industry	9 Requests
Others	43 Requests	Corporate	3 Requests
		Total	3328

TABLE III
Types of Requests

	January – December 1984												
	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Scientific	124	126	133	126	132	99	100	93	143	220	205	171	1673
Dental News	5	13	7	11	8	10	16	8	7	4	15	10	114
Association	9	3	3	7	11	17	13	14	17	30	19	4	147
Table of Contents	20	21	16	20	20	20	23	23	26	28	33	33	283
MEDLINE	66	46	69	60	48	49	53	64	91	133	100	77	856
Copies of MEDLINE Searches	3	3	1	1	1	3	2	1	—	6	3	—	24
Government	1	3	2	—	2	—	2	2	—	2	—	3	17
Library	3	7	5	5	5	2	3	3	1	—	2	1	37
Package Libraries	26	91	157	35	51	38	50	24	83	79	67	62	763
Circulation	31	17	19	15	33	15	26	30	25	20	17	10	258
Library Orientations	4	3	—	2	5	2	3	3	1	—	2	1	26
Statistics	5	—	3	2	5	2	3	3	1	6	10	6	46
Others	2	—	1	—	—	—	—	—	—	—	—	—	3
Total	299	333	416	284	312	257	294	268	305	528	473	378	4351

however, is that students have moved into second place as library users," Mrs. DiTrollo reported. "In 1984 there were 482 requests for information from students, compared to 91 requests last year."

According to Mrs. DiTrollo, the MEDLINE Searches and CDA's "Package Libraries" published every month in this Journal, are increasingly popular. Tables III and IV show the breakdown of the types of requests received by the Resource Centre.

"A new service to the membership, that of automatically sending interested members copies of Tables of Contents of various Journals subscribed to by the Library, has also been popular this year. Those who take advantage of this service find it a good way to keep informed," said Mrs. DiTrollo.

Requests to CDA Resource Centre have gone from 2,779 for the years of the previous report (1981-1983) to a total of 4,351 requests in 1984.

Tables I and II detail the number of requests by User Category, while Table III and IV show types of requests.

For specific information on the Resource Centre and its available services, contact Trudi DiTrollo, CDA Resource Centre, 613-532-1770, Ext. 223.

DEFINITIONS OF CATEGORIES USED

Scientific includes requests of a scientific nature, whether medical or dental; the information coming from books and periodicals

Dental News covers topics of concern to the dental community such as practice management, peer review, auxiliaries and also meetings, conferences, etc.

Association requests for CDA publications or any Association related information

MEDLINE requests for computerized searches

Government official documents from all levels of Government, whether Federal or Provincial

Library indicates library related activities such as ordering information for publications, questions about the library's holdings, beginning new subscriptions, etc.

Package Libraries requests for the lists of articles on selected topics which are advertised each month in the *Journal*

Circulation requests to borrow books, or a request to acquire a specific title for the library

Library Orientations an explanation of library procedures or a tour of the library

Statistics questions involving statistical data such as the number of dental graduates, number of women dentists, etc.

Table of Contents copies of contents pages of the most current dental journals subscribed to by the library

DEFINITIONS OF USER CATEGORIES

Dentist to indicate an individual in private practice

Staff CDA employees

Student to indicate dental students

Corporate provincial dental associations and licensing bodies

Council/Committee members of the various councils and committees within the Association

Dental Bodies users from specialty sections, affiliated societies, other national dental associations, etc.

Hosp/Health/Army to indicate dentists employed in dental clinics in hospitals, government health departments, or the armed forces

University dentists working in a university setting be it in teaching or research

Auxiliary dental hygienists and assistants

Public to indicate questions from the general public

NDEB foreign and Canadian dentists who need assistance in preparing for their examinations

Library questions from other libraries both dental and non-dental

Industry questions from manufacturers, etc.

Government questions from government agencies

CDSPI AND YOU

Take another look

It is often human nature to take for granted what has been around for a long time, giving it only cursory attention rather than the close attention that it deserves. As a result, benefits and advantages which are available are not being realized.

The Canadian Dentists' Insurance Program (CDIP) has been in existence for many years. Some dentists have carried a small amount of coverage with the Program for many years, perhaps renewing it automatically every year. But when was the last time you really **looked** at the Program? As your dental practice has grown and evolved over the years, so has the CDIP — it's not the same small program it may have been when you first started supporting it. Are you aware that the CDIP offers nine comprehensive plans of insurance to protect your needs for Life, Disability, Office and Liability Insurance? And are you aware that with the participation of approximately 95% of Canadian dentists, the CDIP is one of the largest Association Group Insurance plans in the country?

Do you realize that the CDIP was developed by and for dentists and is still today run by dentists, so that the Program is oper-

TABLE IV

Types of requests from largest number of request to smallest

April 1981 – December 1983

Scientific	1014 Requests
MEDLINE	478 Requests
Package Libraries	397 Requests
Dental News	259 Requests
Library	208 Requests
Circulation	166 Requests
Association	124 Requests
Statistics	54 Requests
Library Orientations	27 Requests
Government	27 Requests
Others	25 Requests
Total	2779

January – December 1984

Scientific	1673 Requests
MEDLINE	856 Requests
Package Libraries	763 Requests
Table of Contents	283 Requests
Circulation	258 Requests
Association	147 Requests
Dental News	114 Requests
Statistics	50 Requests
Library	37 Requests
Library Orientations	26 Requests
Copies of Searches	24 Requests
Government	16 Requests
Others	3 Request
Total	4351

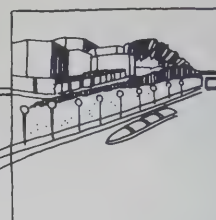
ated with the full support of the profession behind it?

If you weren't aware of the size or extent of your Program, don't feel alone — many dentists carry their CDIP coverage for years without really looking at it or at the rest of the Program.

If you have victimized yourself with this oversight, you owe it to **yourself** to take another look at your Canadian Dentists' Insurance Program.

If you presently enjoy the cost savings under the Life Insurance plan, why deny yourself the similar savings that are available for the Long Term Disability and Office Overhead Insurance plans? This is only one example; by taking advantage of the full range of insurance plans offered by CDIP, you can maximize your cost savings while realizing all of the unique benefits available through your own Program.

You may be thinking, as many people do, that you don't like to "put all of your eggs in one basket". But if it's the strongest basket around, and it offers you excellent protection as well as excellent value, why be superstitious? Be practical instead by utilizing **your Program** to the fullest. Remember, you owe it to yourself. The Canadian Dentists' Insurance Program is **YOUR PROGRAM! BE PROUD OF IT! USE IT!**



CONGRÈS DE L'ADC — 29 SEPT — 2 OCT. — CDA CONVENTION

OTTAWA — A CAPITAL PLACE TO LEARN

The final day of the Scientific Program at Convention '85 will be concerned with discussions on: geriatric dentistry, oral cancer, legal aspects of dentistry, tooth coloring systems, ridge augmentation techniques and endodontics.

Wednesday, October 2 Morning Session — 9 a.m. to Noon



"Clinical Geriatric Dentistry"

Dr. A.S.T. Franks — author of "Geriatric Dentistry", will present a comprehensive review of this evolving discipline, which will include

clinical dental problems in the elderly, management of older patients, and causes of facial discomfort in the geriatric population.



"Dentistry and the Law —

A Dentist's View

Dr. W.J. Dunn — Professor, Division of Community Dentistry, and former Dean of Dentistry, University of West-

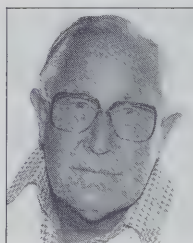
ern Ontario, will discuss his layman's interpretation of the significance of — duty of care, malpractice, negligence, informed consent — on the practice of dentistry.



"The Four Dimensional Tooth Colouring System"

Mr. J.B. Nagy — Dental Technician and Founding Member of the Ontario Society of Studies in Occlusion, will present a

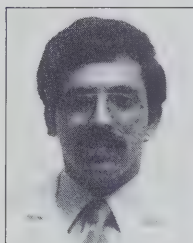
technique to measure, in an accurate and repeatable manner, the natural composition of the color of teeth.



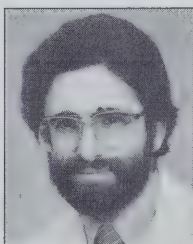
Symposium on Oral Cancer

Dr. J.J. Pindborg — Professor of Oral Pathology, Royal Dental Hospital, Copenhagen, will discuss — "The Recognition and

Diagnosis of Oral Cancer".



Dr. L.J. Eapen — Radiation Oncologist, Ontario Cancer Foundation, will present current ideas on "The Treatment of Oral and Related Cancers".



Dr. J.B. Epstein — Division of Dentistry, Cancer Control Agency of British Columbia, will consider — "The Oral Complications of Cancer Chemotherapy and Radio-

therapy".

Afternoon Session 2 to 5 p.m.



"Update on Endodontics"

Dr. B.H. Dolansky — Endodontist and President-Elect of the Ontario Dental Association will present a modern philosophy of endo-

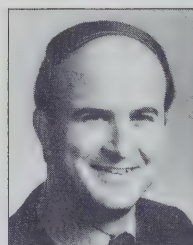
dontic treatment which will include current diagnostic techniques and methods of preparing and obturating canals.



Panel on Ridge Augmentation "Basic Research and Surgical Techniques in Ridge Augmentation"

Dr. P.J. Boyne —

Chief of Oral and Maxillofacial Surgery, Loma Linda University, California, will discuss — the scientific rationale, case selection, current materials and methods — for surgical augmentation of alveolar ridges.



"Prosthetic Rehabilitation of Augmented Ridges"

Dr. G.A. Zarb — Professor and Chairman of Prosthodontics University of Toronto, will con-

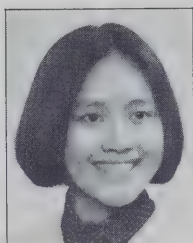
sider the prosthetic techniques that are associated with rehabilitating alveolar ridges which have been surgically augmented.



Symposium on Oral Cancer

Mrs. J. Thomas — Registered Dental Hygienist, Ottawa Civic Hospital, will discuss — "Oral Hygiene and Pre-

ventive Programs for Cancer Patients".



Dr. G. Bradley — Oral Pathologist, Medical Research Council Fellow, McGill University, will examine — "Dental Restorative and Surgical Care for Cancer Patients".



Patients”.

Dr. P. Stevenson-Moore — Head, Division of Dentistry, Cancer Control Agency of British Columbia, will present the topic — “Prosthetic Dental Care for Cancer



Patients”.

Dr. J.H.P. Main — Professor of Oral Pathology, University of Toronto, will comment upon — “Provincial Health Plans and Financial Support for Dental Care of Cancer

Chairman of Scientific Program Committee, CDA Convention 1985, J. Hardie (BDS, MSc, FRCD(C)



A familiar scene in the Nation's Capital. RCMP officers may be seen on Parliament Hill in full ceremonial dress.

(Federal Government photo)

CDA APPOINTS NEW EXECUTIVE DIRECTOR

Mr. A. Jardine Neilson, a long-time senior executive with the federal government, will assume the position of Executive Director of the Canadian Dental Association, effective August 1.

After 21 years of service with the Government of Canada, Mr. Neilson told this Journal that he is “quite excited about the opportunity to work with a successful professional organization like the CDA.”

Mr. Neilson lists among his priorities for his first year with the Association — playing a significant role in establishing a strategic management process within the CDA, establishing credibility with both the membership and the provincial associations, and building a working network throughout the dental community.

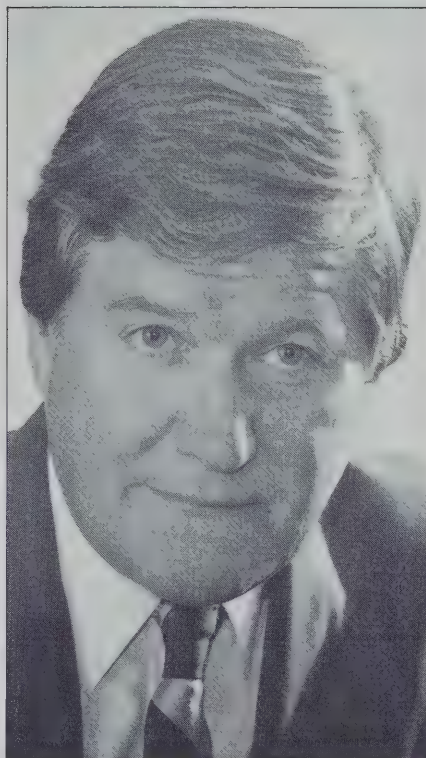
“My strength lies in human resources,” he told the Journal. “One of my principal jobs at CDA will be to optimize the capacity of our human resources to better serve the membership.”

Another of Mr. Neilson's major objectives will be to develop a sense of corporate well-being among staff, and at council and committee levels.

“I am a strong believer that productivity is a function of a person's belief in his or her ability to contribute meaningfully to an organization's goals,” he said.

Native of Verdun, Québec

A completely bilingual native of Verdun, Québec, Mr. Neilson brings to the CDA a



A. Jardine Neilson, BA, MSW

strong background in program management, personnel management, and education.

Following graduation with a Bachelor of Arts degree from Sir George Williams University in Montreal, in 1962, he continued in post graduate study at McGill University, where he received his Master of Social Work degree in 1964.

Mr. Neilson made his first professional contribution in the West. He worked for the Saskatchewan Department of Health as Director of Alcoholism Treatment from graduation until 1967. While there, he served as Executive Secretary to the Minister's Special Committee, which produced the report resulting in the establishment of the Saskatchewan Alcoholism and Drug Addiction Commission.

In 1967, he joined the federal public service and has enjoyed a distinguished career in public service management. He has served in the Department of Manpower and Immigration, the Public Service Commission, Unemployment Insurance Commission and the Department of Indian and Inuit Affairs, where he was Director-General of the Québec Region.

Most recently, until joining CDA, he has been Assistant Deputy Minister, Personnel, for Transport Canada.

Married, with three children, Mr. Neilson is the immediate past president of the Civil Service Cooperative Credit Society Ltd., a past member of the Board of Directors of École nationale d'administration publique, and a past member of the Advisory Vocational Committee, Ottawa Board of Education.

His personal interests range from photography and music to skiing and sailing.

Although he foresees administering to the needs of a professional organization as a big change from administering to the personnel needs of the second largest federal government department, Mr. Neilson looks forward to the prospect with enthusiasm.



Dr. M.J. Crompton

MICHAEL J. CRIPTON NEW PRESIDENT OF RCD(C)

Dr. Michael J. Crompton, of Moncton, N.B., has succeeded the late Dr. K.H. Paynter as President of The Royal College of Dentists of Canada.

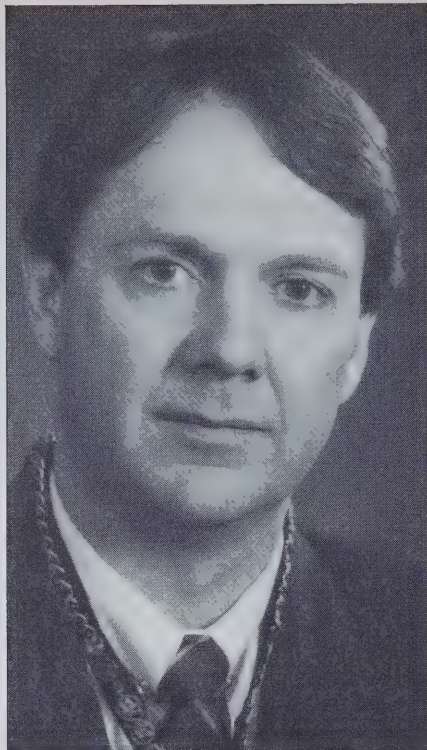
Dr. Crompton was born in Montreal and earned his DDS in 1957 at McGill University, and a Diploma in Orthodontics at the University of Montreal in 1960. He became a Fellow of the Royal College of Dentists in Canada in 1967 following successful completion of the Fellowship Examination, and has been a Fellow of the International College of Dentists since 1978.

He was in general dental practice in Fredericton from 1957 to 1959, and has been in specialty practice in Orthodontics in Moncton since 1961.

Dr. Crompton has served continuously since 1964 as a committee member and officer of many local, provincial and national dental associations, including five years with the National Dental Examining Board of Canada, six years with the Council on Education of the Canadian Dental Association, becoming Chairman in 1973, and three years on the Board of Governors of the Canadian Dental Association.

He was President of the Canadian Dental Association in 1976, the youngest President in the history of the CDA up to that time.

Dr. Crompton was elected to the Council of The Royal College of Dentists of Canada in 1979, representing the Orthodontic section, and became Vice President in September, 1983.



Dr. Denis Wells

ODA NAMES NEW EXECUTIVE

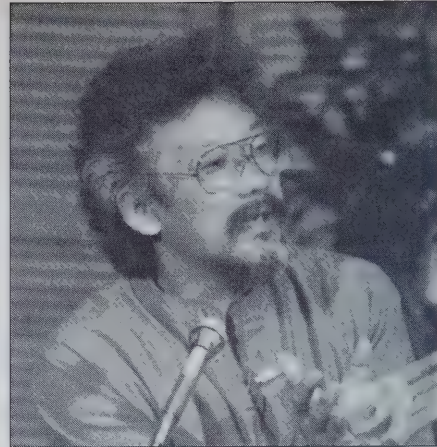
Dr. Denis Wells, a practitioner in Winchester, Ontario, was elected President of the Ontario Dental Association at the ODA's 118th annual meeting in Toronto on May 14, 1985.

A graduate of the University of Toronto Faculty of Dentistry in 1969, Dr. Wells is in private practice in Winchester. He is a charter member of the Ottawa Bytown Study Club and a member of the Cornwall and District Dental Society.

In his inaugural speech to members of the Ontario Dental Association at his installation luncheon, Dr. Wells pledged to continue negotiations with the insurance industry on issues which affect dentistry. He also pledged to work toward improving and increasing membership in the ODA and improving communications between dentists and their patients and dentists and their association.

Another highlight of the ODA meeting was the election of Dr. Bernie Dolansky as President-elect of the Association. Dr. Dolansky, also from Eastern Ontario, specializes in endodontics. He is a graduate of the University of Montréal Faculty of Dentistry, class of 1970, and received his specialty degree in endodontics from the University of Chicago in 1973.

Dr. Dolansky will assume the ODA presidency in May 1986. He is currently practising dentistry in Ottawa, specializing in endodontics.



Dr. David Suzuki, Media Seminar's keynote speaker.

UNIVERSITY OF MANITOBA PRESENTS A MEDIA SEMINAR

The Faculty of Dentistry and the Faculty of Medicine at the University of Manitoba collaborated on April 1, 1985, to present a media seminar entitled "The Voice of Science, Will Yours Be Heard?"

The all-day seminar featured Canada's popular scientist and media personality, Dr. David Suzuki. The seminar attempted to explore the dental and medical professions' relationship with the media and the public.

During Dr. Suzuki's several presentations to the more than 1,000 people in attendance, he offered dental and medical scientists suggestions on how to deal with the media and look at their own roles, issues and social impact.

Two panels were also held at the seminar, moderated by Professor Jack London of the University's Faculty of Law. The panels, made up of physicians and representatives from the media, gave members of both medicine and the media an opportunity to air various points of view. Among the questions the seminar attempted to answer were: Why does the public in general and the media in particular, distrust the medical and dental professions; why does the scientific community fear the media; how can the relationship between the scientific community and the media be improved; is an informed public a threat; how much should the public be told; will I be misquoted or misrepresented by the media; will my colleagues think I'm grandstanding?

Those attending the seminar included dentists, physicians, researchers, administrators, students in the faculties of dentistry, medicine and journalism, media representatives and public relations practitioners.

Because of the favourable reaction to the seminar, the University of Manitoba is planning to hold more forums of this type in the future.

DENTAL ASSISTANT FOR 41 YEARS RETIRES AT 71

Mary Elliot, a Cape Breton Nova Scotia dental assistant for 41 years, and a legendary figure on the Island, retired recently at the age of 71.

Miss Elliot received her chairside training in the Canadian Army Dental Corps during the Second World War. When the War ended, she began work in the office of the Department of Veterans Affairs, for Dr. George MacLeod. She worked for

Dr. MacLeod in DVA and in private practice for eight years. When he went to practice in Halifax, she stayed in Sydney and worked for Dr. Moses Claener. She was with Dr. Claener for 32 years, until her recent retirement.



Mary Elliot, centre, is shown at her retirement with co-workers from Dental Arts Group Limited, Sydney, N.S. Photo courtesy of the Cape Breton Post. Information courtesy of Dr. A.E. MacLeod.

NIDR REPORTS SUCCESSFUL ORAL HYGIENE PROGRAM FOR CANCER PATIENTS

The National Institute of Dental Research (NIDR) reported recently on the success of its program of oral hygiene care with victims of various forms of cancer.

Dr. William E. Wright, senior staff dentist and periodontal specialist has developed an oral health program to assist cancer patients. The program aids in the treatment of oral problems associated with cancer chemotherapy or radiation therapy. During the program, NIDR dental staff conduct oral examinations of cancer patients before, during and after their cancer therapy. In these patients, oral or dental problems are preferably treated prior to, or early in the medical therapy. Patients are also taught an extensive oral hygiene regimen.

"Over the past 13 years, we have treated almost 3,000 cancer patients at the NIDR dental clinic. It has been our experience that with careful and continuous dental care before, during and after cancer treatment, the side effects of cancer therapy can be prevented, reduced or alleviated when the dental team uses an opportunity to participate in the patient's care," said Dr. Wright.

The NIDR oral health program incor-

porates a slide show that illustrates the oral side effects of cancer treatments and what can be done to control or prevent these problems. Groups of cancer patients, and their families, view the show together to learn how to counteract the potential damage to teeth, discomfort of oral soft tissues and oral infections that radiation and chemotherapy sometimes cause.

Some of the oral hygiene care practiced by Dr. Wright and his NIDR dental team include daily brushing and flossing and rinsing with solutions of baking soda and water. In addition, NIDR practitioners routinely clean patients' teeth, care for their gums and monitor the presence of oral bacteria.

Some of the complications which cancer patients may suffer in the oral regions include gum infections, ulceration of the soft tissues, and impaired function of the salivary glands.

"The key to the success of the NIDR program is based on early referral of the patient for dental consultation, treatment before the initiation of cancer therapy when possible, and a well-defined orientation program to inform patients and their families about the difficulties they may experience," said Dr. Wright. "Care by a dentist before, and during cancer treatment, frequent dental appointments after treatment and a diligent personal oral health care regimen can contribute to fewer problems for the patient," he said.

NIDR SURVEYS ORAL HEALTH OF U.S. ADULTS

The National Institute of Dental Research (NIDR) has launched the first large-scale project to survey the oral health of adults in the United States. During this year, a team of dentists will examine almost 20,000 people aged 16 to 75, for evidence of tooth decay and periodontal disorders. "This study will serve as a benchmark," said NIDR Director Dr. Harald Löe. "It will tell us how prevalent periodontal disease, dental caries and tooth loss are, among adults of different ages."

Currently very little is known about the prevalence of tooth decay among adults, Dr. Löe noted. There is some evidence that root caries — decay of exposed root surfaces — is becoming more of a problem in older people, now that fewer teeth are being lost earlier in life. The new survey will provide detailed information about the incidence of root caries and coronal caries.

During the course of the survey, nine dentists will conduct oral examinations at 600 business establishments and 200 senior citizen centres around the United States.

Each oral exam will last about 15 minutes. Using portable equipment, the dentist will check for decay and periodontal disease. No X-rays will be taken, and no treatment will be given. Specially trained personnel accompanying the dentists will record the results.

LAVAL SCIENTIFIC DAY A SUCCESS

by Dr. R.Y. Barolet

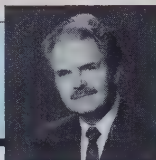
On March 1st, 1985, the dental school at Laval University held its third annual scientific day. This event was attended by about 150 dentists from various parts of the province of Quebec along with most of the faculty members and the dental school students. Two guest speakers who are Laval graduates spoke on their activities and experiences while obtaining their dental speciality degrees.

Dr. Sylvie Morin, who specialized at the University of Iowa in operative dentistry, spoke on the latest trends and techniques of Cosmetic Dentistry. The second speaker, Dr. Pierre-Eric Landry, entertained the audience with his account of observations made during a study tour on Oral and Maxillofacial Surgery in some European countries. Both speakers were highly praised by their audience.

The afternoon programme consisted of table clinics presented by undergraduate and graduate students. Twenty one table clinics were presented by 33 students. Subjects ranged from research presentations to clinical applications and new techniques. A judging of the clinics awarded first prize to Mr. Marc Belanger for his presentation on Erosive Lichen Planus. Mr. Belanger will represent the dental school in the student table clinic competition at the annual meeting of the Canadian Dental Association in September, 1985 in Ottawa.

MEMBERS OF THE ACADEMY of GENERAL DENTISTRY

Meet your colleagues in a relaxing, congenial atmosphere over free drinks and snacks at our hospitality suite during the Canadian Dental Association Convention. Dress casual. Chateau Laurier Hotel, Sunday, September 29, 1985, 4-6 P.M.



PRESIDENT'S COLUMN

by Dr. Ralph Crawford

FEAR IS A FOUR LETTER WORD!

Ours is an active, vital Association and at no time is it more evident than in the days of spring and early summer. During a five-week period in May and June, I had the opportunity and privilege to represent your Association at the following. . .

- Ontario Dental Association Board of Governors' meeting, followed by their Annual Convention, Toronto;
- Prince Edward Island Annual Meeting, Charlottetown;
- Atlantic Provinces Dental Conference, Halifax;
- Alberta Dental Association Annual Meeting, Jasper, and,
- Les Journées Dentaires du Québec, Montréal.

Spring also brings the thrill and reward of Dental Graduation, and I felt very proud of our profession as I brought words of greeting on behalf of the CDA to five Dental Faculty graduating classes, in Winnipeg, Toronto, London, Montréal and Halifax. Interspersed with all the above activities were the "normal" routines of CDA business: Management Committee meetings, Executive Council meetings, strategic planning sessions with senior staff members; plus a Call the President Day.

I never attend a function for CDA that I am not thrilled and proud of the many, many men and women who toil tirelessly for the cause of the profession. I am, however, concerned about those who *don't* participate!

I wonder oft' times if this lack of participation can be attributed to *Fear*, and if it is this Fear that leads to a Life that is either Apathetic or a Life that is Lukewarm. . . neither being overly productive.

There is, I am afraid, a Fear of involvement. To be involved is to take a stand; to voice an opinion; to express an emotion. It is to give up time for a cause other than our own; to leave the lukewarm existence in a safe little sphere in order to take on a challenge of solving a problem.

Fear of Facing others is reality to far too many. The shy, the timid, the unsure and insecure, fall into this category. Nothing is gained by living in a shell. Seldom do I see presidents of organizations; chairpersons, spokespersons, lecturers, who do not show some type of apprehension before a presentation: (believe me, I get my own brand of butterflies before every speech!), but it is the conviction of "getting the job done" that drives people on. We all know too well how to avoid the person "who knows everything", and we also know how much we admire that individual who admits his unsureness, but is willing to learn.

Pity the person who has a Fear of Failure. Ambitious, aggressive, active people succeed — and sometimes Fail! Who is he who dares to believe we are perfect? It is recounted that Thomas Edison, in his search for the right type of filament for the incandescent bulb, experimented with 138 materials before perfecting tungsten. When asked if he didn't get discouraged after so many failures, he quickly retorted, "certainly not, I discovered that 137 materials didn't work!"

Our Association has entered into a New Era. These are exciting times. There is no place for Fear. Our Awareness Program continues to be an outstanding success; the Strategic Planning Program invites exciting challenges of reorganization; the new Executive Director, Mr. Jardine Neilson, brings a vital new direction; the long-promised Government Relations Program promises access to success, and our Councils and Committees are striving for new challenges and projects.

The appeal now is to all those who are **not** involved to step forward and join the winning team. There is no place in our Association for Fear!

"The only thing we have to fear is fear itself."

Franklin Delano Roosevelt
(1882-1945)

Similarly expressed in French. . .

"C'est de quoy j'ay le plus de peur que la peur."

Montaigne
(1533-1592)

PRECONVENTION PARTICIPATION COURSES

SUNDAY SEPTEMBER 29, 1985

Custom Staining of Porcelain Crowns: Gary Jones

This course will stress specifics: how to take and record accurate shades, how to modify and contour crowns and how to custom stain and alter shades at chairside, using a small inexpensive glazing furnace. You'll cover shade determination, lighting, communicating with the laboratory, tooth preparation, metals, internal modifications, contour, texture and external staining. Each participant will have the skill building opportunity of changing shades and custom staining a crown that will be provided.

Fee: \$150.



Gary Jones, B.Sc., Dental Technology is the Technical Advisor for Degussa Canada Ltd. and also their manager of Training and Technical Services. He has many years of

experience and specializes in crown and bridge and porcelain.

Clinical Photography: Rita Bauer

This course will introduce the participants to the use of clinical photography in a private practice. The session will include, review of photographic principles; equipment selection modifying present personal equipment for dental photography; guidelines and techniques for a basic series of patient photographs (facial and intraoral views); use of refractors and mirrors; photographing objects associated with dentistry. Participants are encouraged to bring their own equipment and slides for discussion and assessment at consultation time. Hands on experience will allow the participants to take slides during the course which will be processed and the group will evaluate the results. AGD credits are given.

Fee: \$150.



Rita Bauer, graduated from the Polytechnical Institute in Linz, Austria in 1968 as a professional photographer. She specialized in medical photography and worked at the teaching hospitals in Hamilton for eight years. She joined the staff of the University of Toronto, Faculty of Dentistry in 1978 where she does much of the patient photography.

Hydrocolloid Techniques: David Goldshaw

This course will include an introduction to the material, its properties and handling requirements. This will be followed by a detailed description of the clinical technique. All participants will have ample opportunity to take impressions and pour models in a private practice environment.

Fee: \$150.



David Goldshaw (Licentiate for the British Institute of Surgical Technologists) L.B.I.S.T.

Associated with the dental industry for 13 years.

Trained as a specialist Dental Technician at the Eastman Dental Hospital - London, England.

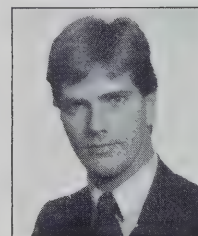
Worked with an International Dental company throughout Europe starting in Research and Development, graduating to Laboratory Materials Specialist.

Emergency Office Procedures: Dr. Mel Hawkins

The professional dental team has a legal and moral obligation to understand how best to treat the high risk patient and a right to the satisfaction that comes from attaining confidence in such a critical area. Both come from practise and participation in a clinical hands on environment like the one

offered in this course. You'll cover such emergency risk reduction techniques as: skillful intertwining of C.P.R. with equipment adjuncts; the methods of preventing an emergency; thorough slide presentation on ABCD emergency armamentarium (building an office emergency kit); applying the use of this equipment on mannequins; discussion of drug applications to an emergency; the initiation and maintenance of intravenous lifeline; how to take and interpret accurate blood pressure readings; case presentation and mock emergencies. Participants may give and receive IV's and IM injections.

Fee: \$150



Mel Hawkins, D.D.S. B.Sc.D. (Anaesthesia) is in private practice limited to anaesthesia in general dentistry in Willowdale, Ontario.

He graduated from the University of

Toronto in 1973 and returned for his anaesthesia degree in 1974. Dr. Hawkins worked for 5 years with the undergraduate and post-graduate program in general anaesthesia, sedation and local anaesthesia at the University of Toronto. He is a holder of a Certificate in Advanced Cardiac Life Support.

Basic Endodontics: Dr. Bernie Dolansky

The endodontic participation program will include a two hour review of the cleansing, shaping and obturation of root canals. We will use a step-back incremental filing technique that produces a funnel shaped canal. Obturation will be with gutta percha in a two step lateral-vertical condensation technique. The participation component of the course will use extracted teeth.

Each dentist should select anteriors, bicuspids and molars that are of a degree of difficulty corresponding to his or her expertise. An instructor can then help each individual at that person's own level.

Fee: \$150



Dr. Bernie Dolansky graduated University of Montreal, Faculty of Dentistry. He received his M.S. in endodontics from North Western University in 1973. He has been chairman

of the ODA's continuing education committee for the past 7 years and has given numerous presentations in Canada, the USA and Europe. He has been President of the Ottawa Dental Society and is presently President-elect of the Ontario Dental Association.

CUSTOM STAINING & ANATOMICAL MODIFICATION USING RESIN BASED MATERIALS

The Art and Science of Using Color in Bonding: Dr. Goldman

Use of value, chroma and hue to determine correct shades; Custom tinting to create aesthetic individualized restorations; Opaque vs translucent shades and their application.

Fee: \$250

Richard M. Goldman, D.D.S., a graduate of New York University College of Dentistry is in private practice in Fairfield, Connecticut, and is a Fellow of the Academy of General Dentistry. Dr. Goldman is the founder of the Academy of Reconstructive and Cosmetic Dentistry, is a member of the American Society for Dental Aesthetics, is an alumnus of the L.D. Pankey Institute for Graduate Dentistry, and is Co-chief of the Department of Prosthetics at Park City Hospital, Bridgeport, Connecticut.

Color Theory Applied to Aesthetics: Dr. Guss

Laboratory fabricated custom microfill restorations for anterior and posterior teeth; Hiding intrinsic stains; Creation of new dentin shades.

Fee: \$250

Stephen H. Guss, D.D.S., is in a private practice xx and reconstructive dentistry in Fairfield, Connecticut. He received his dental degree from the New York University College of Dentistry, is a fellow of the Academy of General Dentistry, a member of the American Society for Dental Aesthetics, and an alumnus of the L.D. Pankey Institute for Graduate Dentistry. Dr. Guss is Co-chief of the Department of Prosthetics at Park City Hospital, Bridgeport, Connecticut.

The Next Wave: Posteriors Expanded Applications for Composites: Dr. Black

Indications for use, cavity preparation, matrix application, restoration, finishing and polishing of posterior composite resins. The steps required for placing a class I and a class II posterior restoration.

Fee: \$250

Jerry B. Black, D.M.D., M.S. Dr. Black is in private practice in Birmingham, Alabama. He received his degrees from the University of Alabama School of Dentistry where he was formerly an Associate Professor in the Department of Operative Dentistry. As a result of his research, Dr. Black has authored scientific articles which have appeared in national and international dental journals.

Computeritization: Jerry Thrasher

A hands on course for dentists and office managers. To help you:

1. Identify if there is an advantage in office computerization.
2. To understand the potential computerization can provide, in the areas of office management, practice building, and reduced paper work.
3. Obtain criteria to look for when assessing the various software and hardware systems available.

Fee: \$150



Jerry Thrasher graduated from Carleton University and started his career with N.C.R. He is now the Product Manager for Health Care Systems, ForceTen

Enterprises Incorporated.

Jerry has been involved in the computer software environment since 1970, both as a designer of software and as an educator.

Quality Control in Radiography: Richard Greenan

The objective of the 1 day workshop will be to present Panoramic, Cephalometric and Temporomandibular joint radiography in a manner that will assure the participants, diagnostic and therapeutic quality radiographs. Participants are encouraged to bring representative samples of their radiographic records for evaluation and discussion during the hands on portion.

Course Outline; Equipment exposure parameters; Imaging Systems, Film/Screen Combinations; Equipment/Techniques Utilized; Patient Positioning Guidelines and suggestions; Anatomical Landmarks; Film Interpretation; Corrected and Optional Views; Manual and Automatic Film Processing; Processing Pitfalls; The Auxiliary's Role.

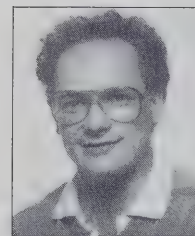
Fee: \$150

Richard W. Greenan Franklin Pierce College — Boston University — U.S. Naval Dental Technician School — U.S. Naval Electricity and Electronics School — U.S. Coast Guard Dental X-ray Technologist — X-ray Specialist/S.S. White Company — X-ray Products Manager/Ritter Company — Present: X-ray Specialist/Denar Corporation — Active member: American Academy of Dental Radiology.

Basic Cardiac Life Support Rescuer: Mark Raizenne

A short lecture component of the workshop addresses cardiopulmonary anatomy, pathophysiology, risk factor reduction and methods of access to emergency medical services. The emphasis of the workshop is on the development of skills in: one and two rescuer CPR; conscious and unconscious adult obstructed victim; conscious and unconscious infant obstructed victim and infant CPR modalities to the Performance Standards defined by the Canadian Heart Foundation. Upon successful completion of the workshop, registrants will receive a wallet-sized Ontario Heart and Stroke Foundation certificate card at the BCLS rescuer level. Course will take place from 8:30 am until 3:00 pm and will be given at the Heart Institute of the Ottawa Civic Hospital.

Fee: \$50



Mark Raizenne, BA, BSc. is presently employed as a Respiratory Physiologist with Health and Welfare Canada. He has extensive training and experience in Kinanthropology

which he has been able to apply to the area of CPR training.

These courses are limited attendance courses. Please indicate choice in order of priority on the main convention registration form. Course organizers wish to express their appreciation to the Continuing Education Committee of the Ontario Dental Association for the services of Dr. Dolansky and Dr. Hawkins. Deadline for preconvention course registration is August 16, 1985.



Race Start
Arboretum (located near
Dow's Lake)

8:15 to 8:45

Report to the start to pick up your T-shirt and race number. Unclaimed T-shirts will be available at the convention registration desk Monday morning

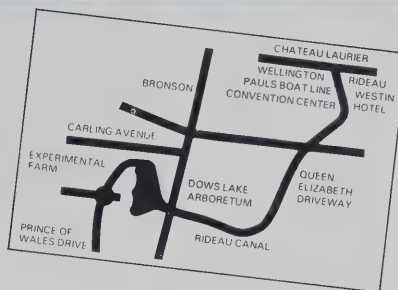
9:00

Race starts. Prize presentations after race.

Directions

To get to the Arboretum follow Queen Elizabeth Driveway (West side of Rideau Canal) to Prince of Wales Drive. Go around the traffic circle to the main entrance of the Arboretum.

Or take Paul's Boat Line (\$2.50 each way) from the back of the Convention Centre (7:45 a.m.) to the boat house on Dow's Lake. Then go up the hill past HMCS Carleton to the main entrance



Entry Deadline Date: September 6, 1985

Entry Fee – \$8.00 (per person)

NAME _____

ADDRESS _____

T-Shirt Size

Men's

☐ S ☐ M ☐ L

Ladies'

☐ S ☐ M ☐ L

Please make cheque payable to: **The Canadian Dental Association** and mail along with completed registration form to:

Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

HOTEL RESERVATION FORM

Name _____
(Please print or type)

Address _____

City _____ Province _____ Postal Code _____

Telephone No. (Res.) _____ (Bus.) _____

Please Check Appropriate Designation

- ☐ Dentist
☐ Specialist _____
(Please list specialty group)
☐ Hygienist
☐ Assistant/Office Personnel
☐ Exhibitor
☐ Technician
☐ Student
Other (please specify) _____

Type of Room

- ☐ Single ☐ Double ☐ Twin ☐ Triple ☐ Other _____

Indicate first three hotel choices (Rates indicated single/double)

- ☐ Westin (CDA & CDAA Headquarters Hotel) (\$89/\$95)
☐ Chateau Laurier (CDHA Headquarters Hotel) \$85/\$95)
☐ Four Seasons (\$85)
☐ Skyline (\$80/\$90)
☐ Holiday Inn, Ottawa Centre (\$80/\$90)
☐ Holiday Inn, Market Square (\$50/\$55)
☐ Delta (\$80/\$90)
☐ Roxborough (\$57/\$62)
☐ Lord Elgin (\$50/\$55)
☐ Plaza de la Chaudière (\$90/\$105)

Arrival Date _____ Time _____ Departure Date _____
Name(s) other occupant(s), if applicable _____

Please Note: A \$75.00 deposit fee is required, payable to the
Housing Bureau, CDA Convention

Please send deposit and hotel reservation form to:
The 1985 Ottawa Convention
c/o Ms Margot Rayburn
Canada's Capital Visitors and Convention Bureau
222 Queen Street, 7th Floor
Ottawa, Ontario. K1P 5V9
Deadline for reservations: August 28, 1985

1985

CDA National Convention Registration Form

Name: Miss/Mrs. _____
 Dr./Mr. _____ (Please print for name tag)

Address: _____

City _____ Province _____ Postal Code _____

Telephone No.: _____

Name of spouse, if registered: _____

CDA Pre-Convention Participation Courses (Sunday, September 29)

Limited attendance courses—please indicate choices in order of priority
 Open to registered CDA Convention delegates only
 Registration required *no later than August 1, 1985*

☐ Custom staining of resin restorations	\$250.00	☐ Computerization	\$150.00
☐ Custom staining, porcelain crowns	\$150.00	☐ Clinical photography	\$150.00
☐ Emergency office procedures	\$150.00	☐ Quality Control in X-Rays	\$150.00
☐ Hydro colloid techniques	\$150.00	☐ CPR Course	\$ 50.00
☐ Basic Endodontics	\$150.00		
			\$ _____

Convention Registration (September 29–October 2, 1985)

(Please complete appropriate category)

Dentist

General Practitioner _____

Specialist _____ (Specialty Group)

	to Aug. 1	after Aug. 1	
CDA Member/foreign dentist	\$210.00	\$250.00	
Non-member	\$260.00	\$300.00	\$ _____

Includes access to scientific sessions & exhibits, three lunches, Sunday registration party and Tuesday Bytown Bash.

Spouse

Dental spouse \$110.00 \$ _____

Includes access to scientific sessions and exhibits, Sunday registration party, Monday fashion show and lunch, Tuesday tour and Bytown Bash, Wednesday lunch. Indicate tour preference ☐ House & Garden Tour
 or
☐ Lanark County Tour.

Wake-up Workout — will participate ☐ Yes ☐ No

Hygiene spouse \$ 50.00 \$ _____

Includes access to scientific sessions and exhibits, sponsored Sunday river cruise (pre-registrants — limited attendance), Registration party/Monday lunch and CDHA Monte Carlo Dance — The Las Vegas Swing.

Hygienist

Full Registration

	to Aug. 1	after Aug. 1	
CDHA Member	\$110.00	\$120.00	
Non-member	\$220.00	\$240.00	\$ _____

Includes access to scientific sessions, and exhibits, sponsored Sunday river cruise (pre-registrants—limited attendance), Registration Party, Monday lunch and Monte Carlo Dance, Tuesday lunch and Bytown Bash, Wednesday brunch.

Daily Registration

CDHA Member	\$ 50.00	\$ 60.00	
Non-member	\$100.00	\$120.00	\$ _____

Day(s) attending _____

Includes that day's scientific sessions, exhibits and luncheon or brunch.

Assistant/Office Personnel

Full Registration

CDA Member	\$100.00	\$110.00	
Non-member	\$130.00	\$140.00	\$ _____

Includes access to scientific sessions & exhibits, Sunday city tour, Registration party, Monday lunch and Casino Night, Tuesday Bytown Bash, Wednesday Breakfast and tour.

Daily Registration

CDA Member	\$ 50.00		
Non-member	\$ 60.00		\$ _____

Day(s) attending _____

Includes that day's scientific sessions, exhibits

Student

Dental — complimentary

Hygiene — complimentary

Assistant — \$ 10.00 \$ _____

Day(s) attending _____

Includes scientific sessions and exhibits only.

Technician

\$ 50.00 \$ _____

Includes scientific sessions and exhibits only.

Other

\$ 75.00 \$ _____

Includes scientific sessions and exhibits only.

Additional Social Tickets

Sunday Registration Party \$20.00 pp \$ _____

Monday President's Gala* \$45.00 pp \$ _____

Monday CDHA Monte Carlo Dance — The Las Vegas Swing \$10.00 pp \$ _____

Tuesday Bytown Bash \$40.00 pp \$ _____

*(not included in Registration package)

Total Amount of Enclosed Cheque \$ _____

Make cheque payable to the Canadian Dental Association and mail to:

1985 CDA Convention

1815 Alta Vista Drive, Ottawa, Ontario. K1G 3Y6

Cancellation Policy: Cancellations are accepted in writing before September 1, 1985 for a full refund. Requests received after that date are subject to a 25% administrative charge.

*Please duplicate and complete this form if more than one registration is required.

Briefly

The Faculty of Dentistry at Dalhousie University, Halifax, took advantage of the study break period earlier this year to provide a week of continuing education courses for dental technicians. The courses were co-sponsored by the Nova Scotia Dental Technicians' Association. The provincial government assisted with a substantial training grant and generous donations of materials and equipment were provided by Degussa Canada Ltd., Austenal Dental and Dentsply Canada Ltd. This is the second year that Dalhousie's dental faculty has used its labs and classrooms for continuing education during the early spring study break period.

Statistics Canada has revealed, in dollar values, the amount spent by each family in Québec in 1982, reflecting their priorities and lifestyles.

The figures, reported earlier this year in the newspaper, *La Presse*, and the *Journal Dentaire du Québec*, are as follows:

For books	\$ 57.40
Beer	\$105.30
DENTAL CARE	\$107.50
Drugs	\$110.90
Newspapers and magazines ..	\$115.00
Lottery Tickets	\$123.10
Telephone — Long Distance calls	\$123.90
Stage Shows	\$139.70
Hair Care	\$140.70
Cigarettes	\$374.60

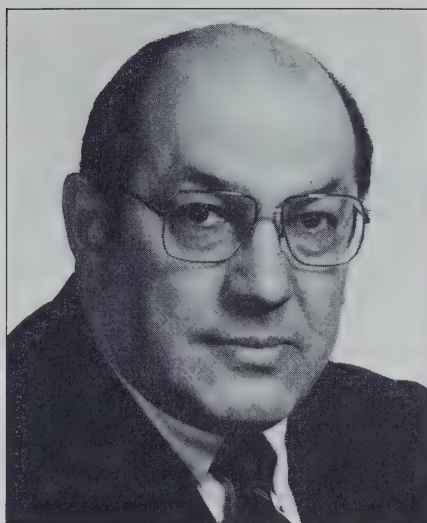
The Ontario Dental Association is now offering assistance for addiction, social or family problems or the stress of economic woes, through a new service.

The program is called *Dentists at Risk*.

ODA members who may be trying to cope with problems of drug or alcohol dependence can now receive confidential counseling and guidance and not risk the possibility of losing their licence to practice by revealing the nature of their problem.

The ODA has urged afflicted member dentists to contact the service early, because early treatment can mean early recovery from such problems.

The program is similar in nature to the Dental Profession Advisory Program established by the College of Dental Surgeons of British Columbia in November, 1981, and comparable programs established a few years earlier in some states of the United States.



Dr. Norman Levine

Dr. Norman Levine, Professor and Chairman, Department of Paedodontics, Faculty of Dentistry, University of Toronto, has received a grant of \$246,000 from the Ontario Ministry of Health to fund operation of the Faculty's mobile clinic for the treatment of disabled patients for the next three years. He has also received \$7,000 from Alpha Omega International Foundation for the treatment of handicapped patients that are home-bound or institutionally-bound.

The Ontario Society of Orthodontists recently elected a new executive for 1985-86.

New President is Dr. Doug Beaton of London, Ontario. Past President is Dr. Brian Hurd of Burlington Ont., while the new Vice-President is Dr. Martin Slater of Downsview Ontario.

Secretary-Treasurer for the Society for 1985-86 is Dr. Rae Munroe of Stratford Ontario.

A new service to guard the safety of the elderly and to aid in the peace of mind of both the elderly person and the family, has been initiated by a Canadian businesswoman.

Margie Castle, president of Elder-Watch Services Inc., started the service in Toronto after her 64-year-old mother who lived in Oceanside California was found in her condominium. She had been dead for five days.

Following the tragic death of her mother, Mrs. Castle worked with the police, fire

department, medical professionals and social workers, among others to develop the Elder-Watch program.

"Hopefully, our philosophy of protection through observation will prevent unfortunate situations such as my family experienced," she said.

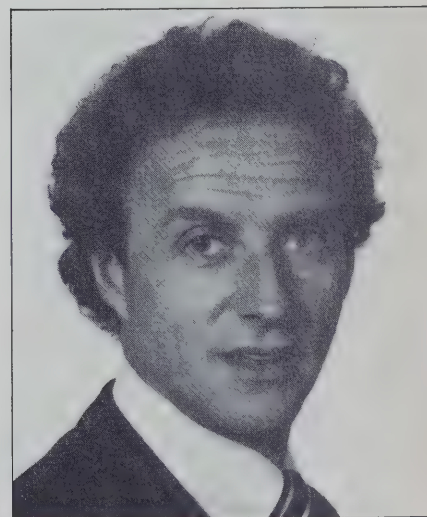
Elder-Watch operates with bonded staff chosen for their experience in working with the elderly. The program includes Elder-Watch identification cards, regularly scheduled visits, safety and security checks, daily telephone calls, weekly written reports and a 24-hour emergency number. A complete file is also kept on each client.

For more information, contact Mrs. Margie Castle, Elder-Watch Services Inc., P.O. Box 159, Unionville, Ontario, L3R 2L8.

Dr. Marshall Peikoff, a Winnipeg endodontist, was recently elected a trustee of the American Association of Endodontists' Endowment and Memorial Foundation.

Head of the University of Manitoba Faculty of Dentistry's endodontic department, Dr. Peikoff is a former President of the Canadian Academy of Endodontics. He is currently a councillor and executive member of the Royal College of Dentists of Canada. He is also a Diplomate of the American Board of Endodontics and a Fellow of both the Royal College of Dentists and the International College of Dentists.

The American Association of Endodontists' Endowment and Memorial Foundation is based in Chicago and is a charitable organization which provides grants for student loans and research.



Dr. Peikoff

At the annual meeting of the College of Dental Surgeons of Saskatchewan, June 13-16, Dr. Wilf Cotter of Saskatoon, who retired in December, 1984 from the Faculty of Dentistry at the University of Saskatchewan, was presented with an Honorary Membership. Also honored were Dr. Clark Blue and Dr. Alex Frenet, both still in private practice in Saskatoon, who were given 40-Year Awards for practising in the Province of Saskatchewan for that period of time.

The City of Regina, Saskatchewan, will have a plebiscite concurrent with the municipal elections in the fall of this year, on the subject of fluoridation of the city's water supply. Several previous plebiscites on the matter have been lost. This time, however, the fluoridation issue is being supported by the city's Department of Public Health and the Saskatchewan Dental Therapists (Dental Nurses).

A dental epidemiological study of the 13-year-olds in the Province of Alberta has recently been conducted. The data collected in this random sample of 3,600 children will provide important information on disease patterns in that province. The co-ordinating committee for the study was composed of Drs. A. Lizaire, P. Finnigan, T. Curry, J. Hargreaves and G. Thompson. The calibration to World Health Organization methodology was carried out by Dr. A. Murray Hunt of the University of Toronto. Funding has been provided by the Department of Social Services and Community Health and the Health Unit Association of Alberta.

Dr. Geoffrey H. Sperber of the Faculty of Dentistry, University of Alberta, was invited to be the major presenter at the Taung 60 International Symposium on Hominid Evolution held earlier this year in Johannesburg, Republic of South Africa. Dr. Sperber presented a paper on "Dental Radiology of the Australopithecines" and was also invited to address the University of Witwatersrand Dental School on the subject of "Cephalic Teratology."

Three new periodicals of interest to the dental profession are currently on the market in Italy.

Dental Cadmos is a leading publication in the Italian dental field. It is published twice a month and includes dental news, articles and original scientific research by both Italian and foreign authors.

Mondo Odontostomatologico is a publication devoted to dentistry and stomatology research. It is published every two months. Another Journal which is published every two months in Italy is Mondo Ortodontico,

a magazine devoted to orthodontics and occlusion. This publication, also new, publishes original scientific research articles in the field.

The subscription rate for Dental Cadmos is \$107 U.S., while Mondo Odontostomatologico has a subscription rate of \$82 U.S. Mondo Ortodontico can be subscribed to for \$82 U.S. also.

For more information, write Masson Italia periodici, Milan, Italy.

James W. Smudski, DDS, PhD, of Pittsburgh, will receive an Honorary AGD Fellowship during the Academy of General Dentistry's annual meeting in Detroit on July 29.

Dr. Smudski is currently Dean of the School of Dental Medicine at the University of Pittsburgh. Previously, he was Dean at the University of Detroit School of Dentistry. At both schools, he supported the development of a wide range of continuing dental education for general practitioners.

He has also served on the American Dental Association's Council of Dental Education and the ADA's Commission on Accreditation. As a member of the American Association of Dental Schools, Dr. Smudski has chaired the Section of Pharmacology and the Council of Deans.

A dentist in Hutchinson, Kansas, believes that on occasion, one must use drastic measures to convince a patient to pay his bill.

Dr. Jeffrey Rayl, tired of waiting for a patient to pay, decided to repossess the patient's dentures.

"Since that time," the patient, Herbert Epp, laments, "it has been soup and hard boiled eggs. And I must dip my toast in my coffee." Mr. Epp, who is 68, after almost a month without his dentures, decided to file a complaint against his dentist.

Dr. Rayl maintains that his patient has owed him \$865 over a long period of time, and has never responded to numerous letters and telephone calls. Therefore, when Mr. Epp returned for an adjustment to his dentures, Dr. Rayl removed and kept them in his office. "It's like taking back a car when payments are not made," commented the dentist.

The patient, who says his only income is a pension cheque, told a newspaper reporter he will pay his dental bill as soon as he can find a job. In the meantime, he is upholding a charge against Dr. Rayl even though he did get his dentures back. To add to Mr. Epp's dilemmas, his wife recently lost her job and she considered the repossession "most humiliating. I wasn't able to cook his favorite meal, pork chops, when he had no teeth," she said.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on May 31, 1985.

<i>Common Stock Fund</i>	\$95.29689
<i>Fixed Income Fund</i>	\$45.71355
<i>Money Market Fund</i>	\$31.76951
<i>Balanced Fund</i>	\$18.65581

Total assets (market value) of the plan were \$44,937,115.

The previous month's figures, as of April 26, 1985, stood as follows:

<i>Common Stock Fund</i>	\$91.27223
<i>Fixed Income Fund</i>	\$44.42756
<i>Money Market Fund</i>	\$31.49349
<i>Balanced Fund</i>	\$17.96721

Total assets (market value) of the plan were \$43,903,734.

For further information write to: Canadian Dental Service Plans Inc., Ste. 600, 2 Lansing Square, Willowdale, Ontario M2J 4Z3 or call the central information services of CDSPI at 1-800-268-5418 (toll free number for Western Canada, Atlantic Canada and Ontario for Code 807 only, 1-800-268-3411 (toll free number for Quebec and Ontario except Code 807), and 497-7117 (Metro Toronto area).

AN INVITATION

TO RETIRED R.C.D.C.
AND C.F.D.S. PERSONNEL

JOIN YOUR BUDDIES & FRIENDS
TO CELEBRATE THE

**70TH ANNIVERSARY
OF THE DENTAL CORPS
SEPTEMBER 27TH & 28TH, 1985
IN OTTAWA, ONTARIO**

IN CONJUNCTION WITH
THE C.D.A. CONVENTION

FOR FURTHER INFORMATION
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**MAJOR C.G. HUNT
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TEL. (416) 294-1294**

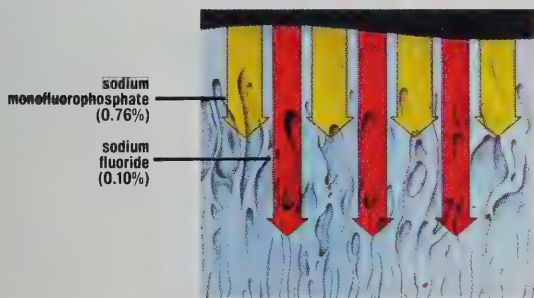
How Colgate's two fluoride formula achieves more complete remineralization resulting in nearly double the cavity protection of a single fluoride formula.*

A major role of fluoride in cavity prevention is to accelerate the process by which demineralized enamel is rebuilt.⁽¹⁻⁴⁾ This reverses white spot lesions which would otherwise become cavities.

Today's Colgate is the first toothpaste with two fluorides—sodium monofluorophosphate at 0.76% and sodium fluoride at 0.10%. Their differing molecular structures mean that these fluorides may work in different ways in tooth enamel. The result at these concentrations, is more complete remineralization of white spot lesions than either can achieve alone.

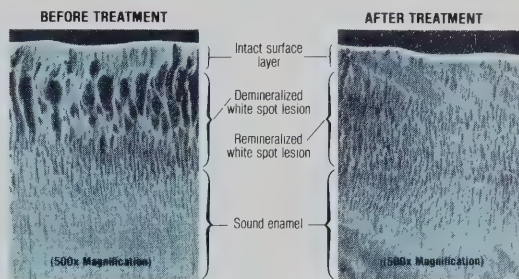
Why these two fluorides remineralize more completely.

It has been postulated that fluorides reach white spot lesions by penetrating enamel through the interprismatic spaces. Sodium monofluorophosphate, being a larger molecule, reacts with enamel primarily at the surface of a white spot lesion. Sodium fluoride, a smaller molecule, penetrates deeper into the lesion.



Working at different levels, the two fluorides may complement each other, enhancing remineralization over a greater area of the lesion than a single fluoride* alone.

This complementary action means more fluoride is available to enhance remineralization over a greater depth of the lesion than is provided by either fluoride alone.^(5,6)



This more complete remineralization has been demonstrated in laboratory studies,⁽⁷⁾ and can be seen in the photomicrographs above.

Clinical studies show nearly double the cavity reduction.

Colgate with this two fluoride concept was tested in a three year clinical study.⁽⁸⁾ The results—Colgate's two fluoride formula provided 27.0% reduction in new caries versus 13.8% for the single fluoride positive control* (DMFT).

Conclusion.

Colgate's two fluoride formula provides superior cavity protection to a single fluoride formula*: *Only Today's Colgate has a two fluoride formula.*

When you recommend Colgate you're recommending an innovative product—offering advanced and clinically tested cavity protection.

*Sodium monofluorophosphate (0.76%)

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*Colgate toothpaste contains sodium monofluorophosphate and sodium fluoride which are, in our opinion, effective decay preventive agents and are of significant value when used in a conscientiously applied program of oral hygiene and regular professional care.

PARTNERS IN PREVENTIVE DENTISTRY.

"LOW BLOWS" IN TELEVISION ADVERTISING?

If the medium is still the message then the dental community is being duped by a brilliant yet diabolical advertisement created by Crest toothpaste to reach its television audience. It is brilliant because it uses the elements of scientific truth to permit an exaggeration of this same truth in its visual portion of a commercial advertisement and the distortion is introduced with impunity. The greater tragedy lies in the fact that Proctor and Gamble, who spent fortunes in their own fluoride research, over many many years, and with the most obvious beneficial results in improved dental health, should themselves resort to the "low blows" seen so often in the crass commercial world of television advertising. It is diabolical because the picture which is a fiction will be believed in its total dimension.

The results of the research undertaken by Silverstone and others offer an improved understanding of the chemistry of calcium and fluorine relative to surface changes in dental enamel. If we as a dental community permit any technical definition of the "start of a cavity" to be turned into a graphic hyperbole with a "fluoride eraser" rubbing out a substantial black carious area, then we are failing in our responsibility. When the illusion is created that *this* decay is reversible and curable with Crest and we do not scream our disapproval loud and clear then we too are being hoodwinked. Perhaps the sadness in the silence springs from our need to temper our scientific chagrin and even disgust because this very journal depends upon revenues from Proctor and Gamble when they advertise in our national publication.

There is a true story which I should like to relate because in every sense it was prophetic. A few years after my graduation the National Dental Convention was held in Halifax which was home for me. I was eagerly looking forward to seeing my friend and classmate who was coming from Newfoundland. I met him at the reception desk of the hotel and hardly had we said our hello's when he paled in anger at something he noticed behind the tables and up a few stairs. It took considerable effort to calm him and convince him that not registering and leaving in a huff would be an empty protest little noticed. I told him that speaking to the "top-brass" or writing to them would have

a greater impact and he agreed. What he found so discouraging were two well known "soft-drink" dispensing machines offering free beverages to dentists and their guests for the three days of the convention. It must be remembered that in the early 50's there was no "sugarless pop", sugar was a known constituent in the etiology of caries, we were preaching to our patients to reduce refined carbohydrate intake and here we were at the C.D.A. convention ignoring our own principles, slaves to the commercial system, without a word of reproof.

What I remember most clearly is the letter that my friend wrote to Dr. Gullet because it was bold and clear and contained a warning about our loss of control when we permit market forces to pattern our behavior. It is only an aside but this disillusioned young dentist went on to become the President of the Canadian Dental Association.

More than a year ago I spoke to the C.D.A. department that is concerned with advertising and accreditation of products and received a sympathetic ear. For many months this particular visual advertisement disappeared from the television screen but it has now returned and the "fluoride eraser" is busy curing cavities, all by itself, once again.

If we remain silent and permit this vulgar distortion of sound scientific research to prevail then one can only ask as did George Bernard Shaw "what price salvation now".

Charles Oler
DDS, FICD

Editor's response: It should be pointed out that the CDA Committee on Consumer Products Recognition has been monitoring such advertisements in print and television media very closely. Also, the CDA Committee was very much concerned about the original "fluoride eraser" depiction, and the Colgate-Palmolive firm was requested to remove this ad. There were "continuing problems for both the CDA and Colgate-Palmolive, related to the attempts to use laboratory experiments and scientific theories in the content of advertising for print and television," a motion of the Committee stated. The firm was requested to revise the presentation stressing that the toothpaste application would "reverse tooth decay at the **early** stages." The firm was also advised not to distort the scientific facts of the process of remineralization.

The Colgate-Palmolive firm, which in

CDA's experience has always demonstrated sincerity in its efforts to be a good corporate citizen in the context of the dental community, accordingly revised the offending commercial presentation. It was brought back to the Committee in a relatively short period of time, and the eraser concept of rubbing out the stain on the tooth had been withdrawn.

The revised commercial ad showed the tooth drawn on a blackboard, and the eraser was being used on that pictured tooth. The Committee found the revised copy acceptable, because the "... changes eliminated any misinterpretation by children on the prospect of 'erasing a real cavity'."

While the Colgate-Palmolive firm obviously wishes to present its commercial messages in an easily understood form, with attractive graphics to appeal to all ages, it has also expressed its intention not to misrepresent scientific fact. It has always demonstrated its willingness to amend those messages when the CDA watchdogs indicate there is a danger of misleading the consumer.

The vigilance continues — the company listens, and complies.

The CDA and its Committee on Consumer Products Recognition believe this close and effective relationship is a valuable factor in safeguarding the interests and health of the Canadian public.

On the other side of the coin, the dentifrice manufacturers consider the professional and scientific guidance of great importance in their efforts to continue to be a profitable commercial enterprise — with integrity in the eyes of the public. The profits realized are frequently shared in promotion of programs that benefit the Canadian public in no small measure.

This same Colgate-Palmolive firm is one of the strongest supporters of CDA's newly-launched Dental Awareness Program. In this area of interest, it cannot be said that the support is based upon a profit motive, because the benefits that will accrue from a highly-successful program will first and foremost result in the improved dental health of the Canadian public. Secondly, dentists in this country will benefit from busier practices. What dentifrices the public uses, or in what volume, will be of minor importance in this context.

Carolyn Hackland
Clarence Metcalfe
Editorial Staff

Book Reviews

DENTAL RADIOGRAPHY

Richard O'Brian

Fourth Edition

W.B. Saunders & Co. Philadelphia, PA
296 pages, \$21.20 U.S.

The old adage that you cannot tell a book by its title certainly is not applicable in this book "Dental Radiography."

The author, although obviously writing for dental auxiliaries, has managed to cover most aspects of this topic and thus made it an informative book for dental students and even perhaps a basic refresher for the general dentist.

Each chapter ends with a review which tends to illustrate and emphasize all the main points of the chapter. The author's style certainly suggests a background of being an educator.

The content is basic and simple to read and understand. It will guide the reader from an initial understanding of the nature and generation of X-rays, and then logically through chapters that deal with safety in the use of X-rays, handling, developing and processing of the film.

Of special interest to the auxiliary are the chapters which illustrate and indicate proper methods of placement of film in both arches and correct X-ray head position. Chapters 5, 6, 7, 8, & 9 describe excellent techniques which are augmented by diagrams and pictures which make the learning, and thus the practical use of this information, very easy.

Chapters 10 and 11 deal first with the basic review of principles, and these are applied in rectifying difficulties which may arise. Examples of situations covered are:

1. Narrow maxillary arch
2. Cuspid Exposure
3. Narrow mandibular arch
4. Gagging patients

The chapter dealing with children is especially valuable for people in a busy pediatric dental office. The handling of these

younger patients from those who are refractory to those who are cooperative is discussed, with many invaluable tips related.

A chapter deals with techniques involving occlusal films, problems associated with the edentulous patient and good X-rays.

In Chapter 16, the temporo-mandibular joint is dealt with in a manner which seemingly makes it very simple to take a series of radiographs which could be very useful in treating these cases.

The last chapter sums up the author's objectives in motivating the reader to pursue excellence through education, technique, knowledge, and attitude!

A book well written and suited for its primary object.

*This book was reviewed by
Dr. Morley Slonim, B.A., D.D.S.
Winnipeg, Manitoba*

REDUCING THE COST OF DENTAL CARE

Robert T. Kudrle and
Lawrence Meskin, Editors

*University of Minnesota Press,
Minneapolis (219 pages)*

This book presents the proceedings of a symposium on cost containment in dentistry which was held at the University of Minnesota in September of 1980. The various participants have contributed chapters and the editors have presented a final chapter which summarizes symposium conclusions and suggests areas worthy of further investigation.

In Chapter 1, the role played by free market forces on dental care costs is discussed. The material presented is quite technical and terms such as price and cost-elasticity of demand, supply-side and demand-side factors and other jargon common to economic theory are used. The arguments set forth are valid and interesting, but the average dental reader, ungrounded in economics,

will experience difficulty in understanding the material presented. The remainder of the book reads more easily.

Differences in effectiveness and efficiency between fee-for-service and capitation methods of dental service payment, and methods of cost containment by third-party payment systems are discussed. The advantages and disadvantages of private dental practices which provide services in specialized settings such as industrial institutions or public school systems are also considered. The possibility of cost control by utilizing dental auxiliaries to provide dental services is discussed in Chapter 3. A comparison is made between the cost of services provided by various dental auxiliaries, those provided by expanded function dental assistants and denturists are identified as most likely avenues for cost containment.

The chapter devoted to cost containment in dental education should be of interest to dental academics as well as those dentists who are concerned with the survival of the profession. The high costs of dental education and outfitting a dental office, as well as the resultant cost of lost financial opportunities are presented and their relationship to recruitment in the profession are discussed.

The chapter on oral disease prevention and its possible role in reducing dental care costs presents various scenarios and estimates of potential cost savings. The conclusions, surprisingly, are that increased prevention may not necessarily translate into future cost savings.

Quality assurance is addressed and the first section of Chapter 6 provides a good introduction to the concepts. Structure, process, outcome, and quality assessment are defined and the part they play in quality assurance is discussed. The authors related economic incentives to the market for quality assurance and conclude that quality assurance will not provide a significant contribution to cost containment. In

fact, it is suggested that, in certain instances, increased costs could result.

The final chapter presents a summary of the symposium proceedings and identifies areas where further research might be of value to the profession. The editors conclude that all of the contributors suggest, either implicitly or explicitly, that the degree of price reduction and production-cost-saving innovation that could occur in future years will be directly related to the extent of competition for the provision of dental care services.

This book discusses reducing the cost of dental care from many different viewpoints and approaches. While it is not a textbook, it does contain a large amount of thought provoking material and is worthwhile reading for those dentists involved in planning for the future of the profession.

*This book was reviewed by
Dr. R.E. McDermott
Head, Dept of Community and
Pediatric Dentistry, University of
Saskatchewan, Saskatoon.*

WALTHER'S ORTHODONTIC NOTES

Fourth Edition
W.J.B. Houston

Bristol 1983
John Wright & Sons Ltd.
217 pages, illustrated, index.

This book is a result of orthodontic notes taken from the lectures given to the students of the Royal Dental Hospital, School of Dental Surgery, London. While based on these lecture notes, the text has been rewritten and re-edited to fulfill the need of a compact text book for under graduate dental students and general dental practitioners. The subject matter is presented in a clean and concise fashion dealing with many of the essentials of orthodontics such as: growth, development of occlusion, etiology of malocclusion, tissue changes with tooth movement, orthodontic diagnosis, treatment of Class I, Class II, and Class III malocclusions, oral surgery in relation to orthodontics and problems of cleft lip and palate. Both fixed appliances, functional appliances and other removable appliances are discussed.

These notes are brief and the illustrations are well done. The paper quality is good and it has a soft cover.

These notes would be a useful reference for all dental practitioners who have some interest in orthodontics.

*This book was reviewed by
Dr. Walter J. Pilutik, an orthodontist in
New Westminster, B.C.*

KILLEY'S FRACTURES OF THE MANDIBLE

Third Edition
Peter Banks

*Yearbook Medical Pubs. Inc.
Chicago Ill.*

Ten years have passed since the second revised edition of Killey's Dental Practitioner hand book on Fracture of the Mandible was reprinted. Mr. Peter Banks has significantly revised the text while maintaining the original objective of the book. This hand book was, and still, remains primarily an introductory text for undergraduate dental students and a highlight or review for general dental practitioners.

Professor Killey's concise and effective format has essentially been maintained in the new text with some very useful editions. Mr. Banks has added a separate introductory chapter on surgical anatomy. He has added an index which was not previously present. The new text is more than 30 pages longer than the old, however, the 102 pages have been made more attractive and easier to read by more frequent illustrations and photographs. Also a more spa-

cious subtitled set-up makes for simpler reading as does the enlarged size type.

The past ten years have seen many technical and research derived innovations in dentistry and the handling of mandibular fractures have been no exception. Newer techniques and areas of some controversy such as a) bone (compression) plating, b) treatment of teeth in fracture lines, c) treatment of edentulous fractures (including primary grafting), d) the treatment and sequelae of condylar fractures, e) other new modalities of fracture fixation (including direct bonding). They have all been touched upon and expanded upon in the new text.

This has to be a recommended text for its original stated purpose, that is an introduction and outline adequate for undergraduate examination preparation. It remains also a very useful aid for the general practitioner who will inevitably be involved in the primary ongoing treatment of a mandibular fracture at some point in his practice.

At approximately \$7.00 you can't go wrong!

*This book was reviewed by
Dr. S.P. Kucey, an Ottawa Ontario Oral and
Maxillo-facial Surgeon.*

OBITUARIES/NÉCROLOGIES

BOOKHALTER, B.: Dr. Bookhalter, a graduate of the University of Minnesota in 1938, was born in 1915. He was a life member of the Canadian Dental Association.

CARSON, J.R.: A Life Member of the Canadian Dental Association, Dr. Carson was born in 1900. He was a graduate of McGill University in 1927. He was a resident of Montreal, Quebec at the time of his death.

DUTHIE, W.: A graduate of the University of Alberta, Dr. Duthie was born in 1926. He practiced for his entire career in Red Deer Alberta.

LACHOWICZ, A.R.: A graduate of McGill University in 1962, Dr. Lachowicz was born in 1936. He was a resident of Scarborough Ontario at the time of his death.

MACLACHLAN, D.E.: Dr. MacLachlan was born in 1919. He graduated from Dalhousie University in

1953. He was a resident of Wolfville, Nova Scotia at the time of his death.

NEWBY, W.G.: A Life Member of the Canadian Dental Association, Dr. Newby was born in 1904. He graduated from North Pacific Dental College in 1925. He was a longtime resident of Sardis B.C.

SHARPE, L.: A graduate of the Royal College of Dental Surgeons in Toronto, Dr. Sharpe was born in 1899. He was a Life Member of the Canadian Dental Association.

SHUSTER, H.J.: Born in 1932, Dr. Shuster was a graduate of McGill University in 1961. He was a resident of Vancouver, B.C. at the time of his death.

WARD, J.C.: A graduate of the Royal College of Dental Surgeons in Toronto in 1923, Dr. Shuster was born in 1896. He was a resident of Edmonton Alberta at the time of his death.

Resource Centre de documentation

DENTAL VENEERS

LES REVÊTEMENTS DENTAIRES

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The copy of the above articles is available at no charge from the library to all CDA members; Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

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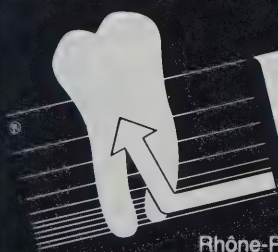
TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

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THE DENTAL SPECTRUM ANTIBIOTIC



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A SURVEY OF PERIODONTAL CONDITIONS IN SASKATCHEWAN ADOLESCENTS

Steven M. Wolfson, DMD, MPH
Michael H. Lewis, DDS, DDPH
Regina, Sask.

SUMMARY

A survey was performed to assess the periodontal health and treatment needs of adolescents enrolled in the Saskatchewan Health Dental Plan. The sample consisted of 1,918 adolescents born in the years 1966 to 1970 inclusive. Participants were examined for gingival bleeding, calculus, debris, loss of periodontal attachment and additional periodontal problems. Examinations were performed by four dental therapist/hygienists. Survey results indicated gingival bleeding and debris decreased as the age of the patients increased, while the amount of calculus increased with age. Periodontal health was generally better in females than in males. Very little loss of periodontal attachment was found. The severity of gingival inflammation, debris, and calculus is low in these adolescent age groups, while the prevalence of these factors tends to be high. The study confirms that adolescents in Saskatchewan have definite periodontal treatment needs.

SOMMAIRE

En Saskatchewan, une étude a été faite auprès des adolescents participant au Régime d'assurance dentaire pour évaluer leur état de santé parodontaire et les soins dont ils ont besoin. On a ainsi examiné 1,918 adolescents nés entre 1966 et 1970 pour savoir si leurs gencives saignaient, s'ils avaient des dépôts de tartre et des débris, si leurs dents se détachaient du parodonte et s'ils avaient d'autres problèmes parodontaires. Effectués par quatre thérapeutes-

hygiénistes dentaires, les examens ont révélé que les débris et les saignements gingivaux diminuent à mesure que les patients avancent en âge, mais qu'au contraire les dépôts de tartre augmentent. Par ailleurs, les filles jouissent en général d'une meilleure santé parodontaire que les garçons. Quant aux pertes d'attachement, elles ont paru minimes. Enfin, chez les adolescents de cet âge, les inflammations gingivales, les débris et les dépôts de tartre n'ont guère paru graves malgré leur forte prévalence. L'étude a donc démontré que les adolescents en Saskatchewan ont réellement besoin de soins parodontaires.

INTRODUCTION

The Saskatchewan Dental Plan provides basic restorative and preventive services in school-based dental clinics throughout the province. Most of the services are provided by teams of dental therapists and dental assistants under the supervision of a Dental Plan dentist. The dental therapists are trained in a two-year course to provide basic preventive and restorative dental care.

When the Dental Plan began operating in September 1974, only six year-old children were eligible for treatment. By September 1982, youngsters aged five through 16 were covered.¹ It was anticipated by program planners that as older age groups were integrated into the program they would require increased periodontal services.

A review of the literature revealed that the periodontal status of adolescent populations has not been widely studied. In the 1981 "International Symposium on the Preven-

tion of Periodontal Disease in Children and Young Adults", Wei² focused attention on periodontal disease in young people. In Canada, Stamm et al³ looked at the periodontal status of 1,093 Quebec school children aged 13 and 14, and Cageorge et al⁴ sampled 1,192 Manitoba children aged 5, 9, 13 and 17 and recorded periodontal conditions. In the United States, Mann et al⁵ surveyed the periodontal conditions of 383 school children in Pennsylvania aged 12 and 16. Most large studies have been conducted outside of North America. In New Zealand, Hunter and Davies⁶ reported on 1,044 students aged 13 and 14. In Israel, Anaise⁷ evaluated the periodontal and oral health status of 1,320 youths between the ages of 14 and 17. Finally, in Australia, Roder⁸ looked at 2,153 second-year high school students and compared the periodontal status of those who had been treated by therapists in the school dental plan with those who had been treated in private dental offices.

As little was known about the periodontal condition of adolescents in Saskatchewan or could be inferred from studies done elsewhere, this survey was undertaken to determine their general periodontal status, the manpower requirements for treating their periodontal problems, and to serve as a baseline for comparison with future studies.

MATERIALS AND METHODS Sample Selection

Participants in the adolescent periodontal survey were chosen from children enrolled in the Dental Plan who were at the time aged 12, 13, 14, 15 and 16.

Because of staff availability, the survey was conducted in the North Battleford, Prince Albert, Saskatoon and Regina dental regions. A cluster sampling technique was used, and samples were selected from schools throughout each of these regions. Children in a selected school were chosen by drawing a stratified systematic sample with a random start from a list of all eligible adolescents in the school. If a student was chosen but absent, the next eligible student on the list was substituted. A daily sample of 40 patients was drawn, with the dental therapist hygienist attempting to examine approximately 30 of these patients.

Clinical Examination

All examinations were performed by a dental therapist hygienist. The therapist hygienist is a graduate of a unique program at Wascana Institute where graduate dental therapists receive approximately seven months' additional training and become qualified dental hygienists. Because of the large geographic area, four examiners were used. A dental assistant worked with each examiner recording the results on a standardized form.

The four survey teams took part in two training sessions. One was held prior to the start of the survey and the second in the middle of the survey. During both training sessions, inter-examiner reliability was checked between pairs of dental therapist hygienists and between each therapist hygienist and the dentist coordinating the survey.

The following teeth were selected for examination: 17, 16, 12, 21, 26, 27, 37, 36, 32, 41, 46, 47. The maxillary and mandibular incisors and first molars were chosen because they have been present in the mouth the longest time. The second molars were chosen because they have been shown to suffer the greatest mortality from periodontal disease, while cuspids and premolars were not examined as they have the least mortality from periodontal disease as determined by Hirschfeld and Wasserman.⁹ No substitute teeth were used for missing, unerupted, orthodontically banded teeth or teeth which for some reason could not be scored. The following clinical examinations were carried out on the selected teeth: Debris Index (DI),¹⁰ Bleeding Index (BI),¹¹ Calculus Index (CI),¹⁰ and Measurement of Loss of Periodontal Attachment which was calculated from the measurements of pocket depth, recession and the height of the free gingiva of the CEJ.¹²

Examiners were instructed to complete each index for all selected teeth before going to the next index. If undecided between two scores, they were to choose the least severe. No radiographs were used in the survey.

TABLE I

Distribution of Population by Age and Sex

AGE	FEMALE		MALE		TOTAL BY AGE	
	%	(N)	%	(N)	%	(N)
12	49.3	(230)	50.8	(237)	24.4	(467)
13	47.7	(225)	52.3	(247)	24.6	(472)
14	47.1	(176)	52.9	(198)	19.5	(374)
15	48.2	(175)	51.8	(188)	18.9	(363)
16	42.2	(102)	57.9	(140)	12.6	(242)
TOTAL BOTH SEXES	47.3	(908)	52.7	(1010)	100.0	(1918)

TABLE II

Average* Debris Category by Age

CATEGORY (RANGE)	16 yr. % (N)	15 yr. % (N)	14 yr. % (N)	13 yr. % (N)	12 yr. % (N)	ALL AGES % (N)
Very Light (0.0 - 0.75)	30.2 (73)	33.3 (121)	28.6 (107)	19.1 (90)	17.6 (82)	24.7 (473)
Light (0.76 - 1.50)	52.1 (126)	49.6 (180)	44.7 (167)	51.1 (241)	46.3 (216)	48.5 (930)
Moderate (1.51 - 2.25)	15.3 (37)	16.0 (58)	22.7 (85)	25.9 (122)	31.7 (148)	23.5 (450)
Heavy (2.26 - 3.00)	2.5 (6)	1.1 (4)	4.0 (15)	4.0 (19)	4.5 (21)	3.4 (65)

*Average indicates the average debris of all examined teeth per participant

TABLE III

Average* Bleeding Category by Age

CATEGORY (RANGE)	16 yr. % (N)	15 yr. % (N)	14 yr. % (N)	13 yr. % (N)	12 yr. % (N)	ALL AGES % (N)
Very Mild Inflammation (0 - .25)	44.2 (107)	36.6 (133)	34.2 (128)	29.0 (137)	29.1 (136)	33.4 (641)
Mild Inflammation (.26 - .50)	26.5 (64)	30.3 (110)	29.7 (111)	33.5 (158)	28.9 (135)	30.1 (578)
Moderate Inflammation (.51 - .75)	19.0 (46)	23.1 (84)	20.3 (76)	25.0 (118)	25.1 (117)	23.0 (441)
Severe Inflammation (.76 - 1.00)	10.3 (25)	9.9 (36)	15.8 (59)	12.5 (59)	16.9 (79)	13.5 (258)

*Average indicates the average bleeding of the gingiva surrounding all examined teeth per participant.

Materials

All examinations were conducted in Dental Plan school clinics equipped with a dental chair and light. Fox Williams periodontal probes were used to score the debris index, bleeding index and loss of attachment. The pig-tail end of the #13-14 dental explorer was used to detect calculus.

RESULTS Demographic Data

Children were examined in a total of 59 different schools. The number examined per school ranged from 16 to 53 with an average of 32.5 per school. A total of 1,918 young people aged 12 to 16 inclusive were examined. The sample consisted of slightly

more males than females and a larger proportion of younger than older adolescents (Table I). Of those examined, 85.7 per cent had been enrolled in the Dental Plan for four or more years.

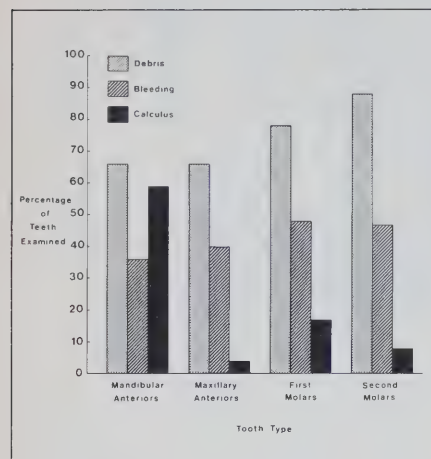


Fig. 1. Average debris category by sex.

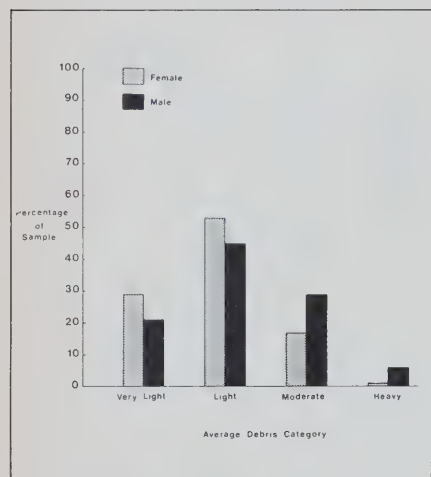


Fig. 2. Amount of debris, bleeding and calculus by tooth type.

Debris

The average debris index (DI) score per child can range from 0.0 to 3.0. The mean score was 1.17 with a standard deviation of 0.6. The DI scores were grouped into four equal categories to analyze the distribution of severity in the population.

The light debris category contained the largest number of people. The average debris scores tended to be higher in the younger age groups (Table II). Figure 1 illustrates that more males than females had moderate or heavy debris.

When the debris index scores were analyzed by tooth, the maxillary second molars had the heaviest debris deposits. Debris covered more than 2/3 of their buccal surface in 24.4 per cent of cases. This compares to the mandibular first molars which had debris covering more than 2/3 of their buccal surface in 1.0 per cent of the cases. Figure 2 shows the percentage of teeth with some debris in four different areas of the mouth.

TABLE IV

Calculus Rating by Sex

RATING	FEMALE	MALE	BOTH SEXES
	% (N)	% (N)	% (N)
No Calculus	28.4 (258)	24.4 (246)	26.3 (504)
Supragingival Calculus	38.8 (352)	36.6 (370)	37.6 (722)
Subgingival Calculus or Retentive Site	32.8 (298)	39.0 (394)	36.1 (692)

TABLE V

Average* Calculus Rating by Age

RATING (RANGE)	16 yr. % (N)	15 yr. % (N)	14 yr. % (N)	13 yr. % (N)	12 yr. % (N)	ALL AGES % (N)
Very Light (0.0 - 0.5)	77.3 (187)	76.3 (277)	81.0 (303)	85.0 (401)	86.5 (404)	82.0 (1572)
Light (0.6 - 1.0)	12.8 (31)	14.6 (53)	11.5 (43)	11.9 (56)	9.9 (46)	11.9 (229)
Moderate (1.1 - 1.5)	6.6 (16)	7.7 (28)	5.9 (22)	2.8 (13)	3.0 (14)	4.9 (93)
Heavy (1.6 - 2.0)	3.3 (8)	1.4 (5)	1.6 (6)	0.4 (2)	0.6 (3)	1.3 (24)

*Average indicates the average calculus present on all examined teeth per participant.

Bleeding

The scores for the average bleeding index (BI) per person can range from 0 to 1.0. The mean BI was 0.44 with a standard deviation of 0.28. Thus, the marginal gingiva of 44 per cent of the teeth bled.

Subjects were again grouped into four equal categories based on the percentage of their teeth which showed bleeding at the marginal gingiva after gentle probing. Since bleeding is an indication of inflammation, these categories were used to estimate the severity of inflammation. Table III shows the distribution of those surveyed by age and severity of inflammation. The very mild inflammation group was the largest. The smallest group was those with severe inflammation. Males had more inflammation than females, and the proportion of the sample with moderate or severe inflammation decreased as the age of the sample increased. In this sample, 91.8 per cent of the children had bleeding of the marginal gingiva, around one or more teeth. The marginal gingiva of all teeth probed bled in 79 individuals (4.1 per cent), and the amount of bleeding by tooth type is illustrated in Figure 2. The marginal gingiva of molars bled somewhat more frequently than incisors.

Calculus

In this study, subgingival calculus and retentive sites are combined. Retentive sites include subgingival irregularities such as amalgam overhangs and enamel defects which would encourage accumulation of plaque and gingival inflammation.

Calculus was found in 73.7 per cent of the sample. The number of adolescents with supragingival calculus only and those with some subgingival calculus or retentive sites was almost equal (Table IV). Males tended to have more calculus than females.

Provincially, subgingival calculus or retentive sites were found in 43.8 per cent of 16-year-olds, 42.4 per cent of 15-year-olds, 37.2 per cent of 14-year-olds, 33.3 per cent of 13-year-olds, and 29.1 per cent of 12-year-old students. Also, the number of subjects with no calculus increased as age decreased. No calculus was found in 20.7 per cent of 16-year-olds, 19.0 per cent of 15-year-olds, 25.4 per cent of 14-year-olds, 28.2 per cent of 13-year-olds and 33.6 per cent of 12-year-olds.

The amount of calculus associated with different areas in the mouth varied considerably (Figure 2); maxillary incisors had the least calculus and mandibular incisors the most. The calculus index (CI) scores ranged from 0 to 2.0. The mean CI score was 0.31. Standard deviation was 0.36.

Subjects were grouped into one of four cat-

egories based on their CI score (Table V). This was done to analyze the severity of calculus. The very light category had more young people than the other three categories combined, and the table also confirms the trend of increasing calculus with age.

Recession and Loss of Attachment

Periodontal pockets greater than 3 mm on one tooth were present in 14.6 per cent of subjects, while 12.6 per cent had pockets greater than 3 mm on two or more teeth. A total of 98.6 per cent of individuals examined had no teeth with recession. Only 3.3 per cent of the young people surveyed had loss of attachment on one or more teeth.

Relationship between Debris, Bleeding and Calculus

Correlation coefficients were calculated to analyze the relationship of the three indices. Bleeding was found to be positively related to both debris and calculus; calculus and debris had only a weak positive correlation.

DISCUSSION

The most significant findings of this survey were that periodontal disease and factors leading to it, such as oral debris, gingival inflammation and supragingival and subgingival calculus, are widespread in the population of adolescents in Saskatchewan. Even the youngest age group studied had a high prevalence of debris, inflammation and calculus. Although these conditions are widespread, on average they were not severe.

Increased debris was related to increased bleeding. This agrees with studies done by Horowitz et al.¹³ and by Lang et al.¹⁴ Both debris and bleeding were more prevalent in males than in females and in younger than in older adolescents. One can speculate that females and older adolescents are more concerned about their appearance and therefore have better oral hygiene practices. Improvement with age may also be related to longer exposure to the Saskatchewan Health Dental Plan. Another factor affecting the high prevalence of bleeding on probing is puberty gingivitis, which is common just prior to and during early puberty.

Calculus was very widespread in the population studied, however the severity was low. Most individuals had very light calculus. Subgingival calculus, which is more difficult to remove, was found in a significant number of those examined — 43.8 per cent of 16-year-olds and 29.1 per cent of 12-year-olds. The number of adolescents who were calculus free decreased from 37.3 per cent of 12-year-olds to 20.7 per cent of 16-year-olds. The increase in prevalence and severity with age is consistent with the chronic nature of calculus build-up.

The onset of calculus formation was at a somewhat younger age than expected.

The finding that supragingival and subgingival calculus was more commonly associated with the first molars and the mandibular anteriors concurs with the belief that calculus formation is associated with the openings of the salivary ducts into the oral cavity.

Inflammation, debris and calculus deposits are all reversible conditions. The clinical detection of loss of attachment indicates that irreversible destruction has occurred. Pocket depths greater than 3 mm were found in 27.2 per cent of the sample. However, actual loss of periodontal attachment on one or more teeth was detected in 3.3 per cent of those examined. This is another indication that periodontal disease in this population is not severe.

A few individuals had severe destructive periodontal disease. The Dental Plan and the University of Saskatchewan College of Dentistry are now attempting to identify all young people in the province with this serious condition and it is hoped to learn more about its prevalence, prevention, treatment and long-term effects.

It is recognized that there are limitations inherent in a survey of this type. Four examiners were used because of the distances involved, the limitations in time and money, and because it was considered desirable for staff to become familiar with the periodontal condition of patients in their area of work. Examiners reached a high level of agreement during the calibration exercises; however, some increase in variability can be expected when multiple examiners are used. Using selected schools for clustered samples risks biasing the sample, but this was the only practical means of sampling this large geographic area with a relatively sparse population.

In this survey, the older age groups were under-represented. Many of these children have been assigned to dentists in private practice, under the Saskatchewan Dental Plan's adolescent dental program, and were not available for examination. These limitations probably have a greater effect on analysis related to sub-groups within the population than on trends for the entire population.

CONCLUSIONS

The findings of this study raise questions relevant to the treatment of adolescents in public health programs and private practice. Long-term studies are needed to determine if the pattern of periodontal disease and related conditions in young people is changing. It must also be questioned whether or not the early recognition and treatment of periodontal conditions in adolescents reduces the severity of periodontal disease

in later life. Finally, it is hoped that this survey will reinforce the importance of considering periodontal conditions when planning treatment and prevention for adolescents.

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Dr. Wolfson was formerly assistant director, Saskatchewan Health Dental Plan.

Reprint requests to Dr. Lewis.

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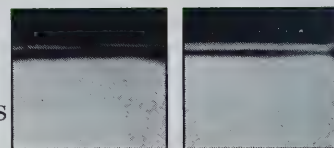
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THE CHANGING NATURE OF PAIN CONTROL CLINICAL ASPECTS OF ENDORPHINS AND ENKEPHALINS

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ABSTRACT

Within the past decade, discoveries of peptides in the brain with potent, morphine-like qualities have stimulated many studies of their physiological purpose. Investigators have pursued associations between experimental pain, pathological pain and various non-drug procedures for inducing analgesia, and activation of endogenous opioid systems. Many experiments in human subjects have employed the narcotic antagonist, naloxone, a drug that can suppress all effects produced by morphine and many actions of the endogenous opioid peptides. These studies have produced interesting, albeit, in some instances, equivocal results. Other investigations of the opioid peptides are leading to the development of novel analgesic compounds and new approaches to the treatment of pain.

SOMMAIRE

Durant la dernière décennie, on a découvert dans le cerveau des peptides ayant de puissantes vertus semblables à celles de la morphine. Ces découvertes ont donné lieu à de nombreuses études portant sur l'utilité physiologique de ces peptides. Les scientifiques ont cherché des associations entre la douleur expérimentale, la douleur pathologique et diverses façons de provoquer l'analgesie sans l'aide de drogue d'une part et, d'autre part, l'activation des systèmes opioïdes endogènes. Dans plusieurs expériences faites sur des humains, on a eu recours au naloxone, antinarcotique et drogue capable d'effacer tout effet causé par la morphine et de nombreux effets causés par les peptides opioïdes endogènes. Ces études ont donné des résultats intéressants, bien que dans certains cas ils aient été équivoques. D'autres recherches sur les peptides opioïdes ont conduit à la création de nouveaux composés analgésiques et à de nouvelles façons de traiter la douleur.

INTRODUCTION

Although opium and its two major natural alkaloids, morphine and codeine, have long been used as medicaments for pain relief, the contemporary era of opiate research is regarded as being about a decade old. Before this time the focus of narcotic research was directed towards the development of analogues of morphine and codeine which would retain the desirable qualities of the traditional narcotic analgesics, but be free of such adverse properties as respiratory depression, the induction of constipation and, particularly, their addictive liability. Over 50 years or so thousands of compounds were made and tested. Many were potent analgesics, several were regarded as being improvements on morphine, but the production of a potent analgesic without significant side-effects remained, as it does today, a goal yet unattained. Nonetheless, it was found that only substances with certain characteristics were effective analgesics. While exceedingly potent drugs could be much simplified modifications of the structurally complex natural alkaloids, only isomers with certain stereochemistries afforded analgesia. Other stereoisomers of the same substance would be completely inactive. Beyond this, it was recognized that there were necessary structural features present in the morphine molecule without which surrogate compounds would be less active. It was found then that manipulations of structure were possible, within limits, and analgesic properties would be maintained. Further, other studies revealed that certain minor changes to potent analgesics produced drugs, such as naloxone, with the unusual ability to diminish or antagonise analgesia induced by morphine. Taken together, these factors: potency, essential structural requirements, the occurrence of antagonist analogues, suggested that the brain possessed receptors which interacted with narcotic analgesics.^{1,2}

Opiate Receptors in the Brain

It proved to be extremely difficult to demonstrate directly the existence of such entities as opiate receptors in the mammalian brain. Then, in 1973, three groups of researchers, Simon in New York³, Pert and Snyder in Baltimore⁴, and Terenius in Uppsala, Sweden⁵, reported simultaneously that brains of animals contained sites in neural tissue fractions that were able to bind radioactively-labelled, narcotic analgesics very strongly. Moreover, the relative order in which this binding occurred could be related to the potency of many of the different drugs, narcotic analgesics, or analgesic antagonists, in man⁴. Within a year, Pert and Yaksh⁶ had mapped over 500 locations in the primate brain to determine the distribution of these binding sites. A positive correlation was established between the concentrations of binding sites and locations previously shown to yield analgesia after microinjections of morphine: areas in the medial thalamus, periaqueductal and periventricular gray matter, and the hypothalamus. A major discrepancy was in the amygdala, an area rich in binding sites, but where morphine was not an effective analgesic. It was considered probable that the opiate receptors in this region might mediate some of the non-analgesic effects of morphine, the subtler, passive qualities of placidity and euphoria. Pert pointed out that, with this exception, the distribution of binding sites correlated well with the neuroanatomical, extralemniscal pain pathways described in the early 1960s by Nauta and his colleagues⁷.

The question then became, if there are binding sites in regions of the brain that are able to interact very specifically with narcotic analgesics, then are there endogenous substances in brain tissue which act upon them? Allied questions considered the characteristics of the putative endogenous factors. Would they prove to act as anal-

gesics? or be transducers of pain? The idea that the brain contains both pain-sensitive and analgesic systems in proximity to the neuroanatomical pathways was not new. Melzack and his co-workers in 1958, and others at later times, had observed that lesions in the central gray and thalamus afforded moderate analgesia⁸. On the other hand, Olds and Olds reported in 1963 that acute electrical stimulation of the periaqueductal gray region produced aversive responses suggestive of pain⁹. This also was seen by other investigators^{10,11}. In contrast, Mayer and his colleagues in 1971¹², and Liebeskind and colleagues in 1973¹³, prior to the biochemical verification of opiate receptors, had shown that prolonged electrical stimulation of the periventricular-periaqueductal region produced analgesia.

The Discovery of Enkephalins and Endorphins

Several groups of scientists began searching for endogenous pain relievers. Extracts of brain tissue were found to have morphine-like pharmacological effects on smooth muscle preparations, most notably the ileum of the guinea pig and the vas deferens of the mouse. Similarly, the extracts displayed biochemical properties like morphine, displacing radioactively labelled narcotic drugs from the opiate binding sites. In 1975, investigators in Aberdeen, Scotland, isolated two pentapeptides from pig brain that had potent opiate-like effects¹⁴. These two substances differed in possessing methionine or leucine as C-terminal amino-acids. Accordingly, they were called methionine-enkephalin and leucine-enkephalin. In addition, the observation was made that the five amino-acid sequence of methionine-enkephalin was present in the structure of a previously known peptide, beta-lipotropin. This substance had been discovered some ten years earlier in the pituitary gland of the sheep and camel¹⁵, and subsequently extracted from the pituitary of other species. Beta-lipotropin was found by Feldberg and Smyth¹⁶ to be an innocuous polypeptide without opiate-like actions.

The pituitary gland is well-established as the source of many physiologically active peptides. It was found that extracts of the pituitary extracts had potent opiate-like activity. Through 1976, researchers in the United States and Britain found three pituitary peptides, also derived from beta-lipotropin, with opiate-like properties^{17,18,19}. These were called alpha-, beta- and gamma-endorphin, after a suggestion of Simon that "endorphin" would denote a contraction of the term "endogenous morphine". Five

substances with opiate-like activity were now known, but the quest was not yet over. The occurrence of a family of peptides related to each other through beta-lipotropin gave rise to the hypothesis that brain cells first made beta-lipotropin, which then degraded to beta-endorphin, the other endorphins and ultimately to methionine-enkephalin. There was, however, evidence against this postulated heredity. Elegant studies employing immunological-histochemical techniques determined that there were differences in distribution of methionine-enkephalin and beta-endorphin within the brain²⁰. Methionine-enkephalin could be found in many regions in which beta-endorphin was virtually absent. Furthermore, the other pentapeptide, leucine-enkephalin, appeared to exist without progenitors. Was leucine-enkephalin a member of a similar family of interrelated peptidic opioids? and if so, where and what were these?

One of the groups investigating opiate-like peptides from the pituitary gland had found an extracted fraction that was pharmacologically and chemically distinct from the endorphins. For several reasons it took many years to obtain an analysis of this material, but in 1979, Goldstein reported the isolation of dynorphin, a pituitary peptide of extraordinary activity²¹. The first five amino-acids of dynorphin comprised the peptide sequence of leucine-enkephalin. Thus, dynorphin could be regarded as a precursor of the pentapeptide. However, investigators elsewhere had found another leucine-enkephalin containing peptide, alpha-neoendorphin²². There was then the possibility that leucine-enkephalin could be derived from two separate sources. The origins of this multiplicity of opioid peptides of various types has been resolved quite recently. Groups in Japan and the United States, using state of the art, highly sophisticated methods for purifying messenger RNAs of the opiate peptides, and subsequently cloning DNAs for these, have found that there are three large precursors for the known endogenous opioid peptides^{23,24,25}. These large peptides are called preproopiomelanocortin, preproenkephalin A and preproenkephalin B. The various opioid peptides are dissected from the progenitor peptides by enzymolysis at sensitive points.

Do Endogenous Opiates Suppress Pain?

The biochemical studies have outpaced the physiological and pharmacological issues that were raised with the discovery of the endogenous opioid peptides. Prominent amongst these was the question of whether there was any relationship to the

phenomenon of pain. As mentioned briefly, opiate binding sites occur along the pathways travelled by pain stimuli. In proximity to these binding sites are neurons that contain opioid peptides. This neuroanatomical order presupposes a role for the peptides in reducing pain, but is this a functional arrangement? and can it be amplified for pain control? Many of the studies that have pursued these matters have employed a drug mentioned above, called naloxone. Naloxone is a simple and safe analogue of the potent analgesic drug, oxymorphone. It is able to inhibit, or reverse, the effects of narcotic analgesics, while having little apparent activity of its own. For these reasons, researchers have considered that if an experimentally-induced effect can be suppressed by naloxone, then it is possible that the effect itself was mediated by endogenous opiate-like substances. There are, however, certain caveats to this theory. The dose of naloxone must be appropriate, as too little may be ineffective and too much may result in a loss of specificity of action²⁶. To complicate the problem further, strong evidence exists for there being several types of opiate receptors, based on receptor binding studies and on pharmacological experiments^{27,28}, and naloxone is not a universally potent antagonist at all forms of opiate receptor. Thus, while the ability of naloxone to reduce a response may be taken to mean that opiates were involved in its expression, a lack of reversibility cannot exclude participation of an endogenous opioid system.

There have been several studies that have pursued the possibility that endorphins are released when a painful stimulus is felt and that the stimulus-induced release reduces the impact of the pain. If this were so, then an injection of naloxone could increase sensitivity to pain. In short, it would lower the pain threshold. In some experiments in animals naloxone had no effect on pain/discomfort threshold, but in others there was a change in the direction of increased sensitivity^{29,30}. Experimental pain investigations conducted in man have also proved equivocal. Studies indicated that naloxone did not enhance severity when electrical stimulation of the arm was the pain stimulus³¹. Verbal reports of increased pain severity were similarly absent when the stimulus to the arm was ischemic pain, or that produced by placing the arm in cold water³². On the other hand, Bunney and his colleagues examined pain perception and somatosensory evoked potentials in volunteers who were divided into pain-sensitive and pain-insensitive groups. Naloxone was found to lower the sensitivity of those who were initially insensitive to electrical shocks, but seemed to increase the pain threshold in the group that were

sensitive. The data were examined later for diurnal effects, and time-associated changes in the responses of subjects were observed³⁴. It appeared that volunteers tested prior to noon were less pain sensitive, more pain resistant, than those tested in the afternoon. The effect of naloxone was apparent in those with the higher, morning, pain thresholds, there being less evident impact in afternoon tests. These results could be construed to mean that an individual's pain threshold is influenced by endogenous opioid peptides, but these may vary through the day and be active at some level that is not readily perceived.

The above results were obtained from healthy volunteers exposed to experimental pain. Clinical pain differs, however, from experimental pain in many ways: in chronicity, suffering, and intensity. When naloxone was tested in post-operative patients, as early as 1965, Lasagna had commented that it possessed a "curious hyperalgesic effect"³⁵. This was substantiated in tests by Levine and his colleagues who investigated the effects of naloxone in patients who had had impacted third molars extracted³⁶. A significant increase in pain intensity occurred after the administration of naloxone, consistent with the suggestion that endorphins were functioning as an intrinsic pain suppression system. The facile activation of such an endogenous pain system may underlie congenital insensitivity to pain. Dehen and his colleagues tested naloxone and placebo in a subject with this condition³⁷. Naloxone reduced the nociceptive threshold of this subject towards normal, whereas the placebo was ineffective.

As mentioned earlier, electrical stimulation of discrete areas of the medial encephalon and the brainstem affords analgesia, in animals, or gives the appearance of causing pain. Richardson and Akil reported in 1977 that electrical stimulation of the periventricular and periaqueductal gray matter, in humans, could block continuous pain states³⁸. Depending on the stimulus parameters, analgesia or an aversive condition would result, with patients exposed to high frequency stimulation reporting that they felt anxious and had a need to escape.

The production of analgesia by electrical stimulation in the brain was confirmed by Hosobuchi and his associates, who determined further that the analgesic response was effectively antagonized by naloxone³⁹. In their study, electrodes were permanently implanted in six patients who had constant pain not amenable to reasonable doses of narcotic analgesics. A few days after surgery the patients could self-treat their pain by delivering pulses from a battery operated stimulator. The consequences

of the treatments were positive. Five out of the six patients obtained full relief, and the sixth reported a partial relief from intractable pain, within minutes of stimulation. The five completely abandoned the use of narcotic analgesics, the sixth made occasional use of non-narcotic analgesics. The placebo effect was evaluated by using exhausted batteries. These had no pain relieving qualities. Of particular interest, the first three patients were allowed to use their stimulators continuously. Within a month or so the pain-relieving effects declined. At this time the patients showed a measure of tolerance to narcotic analgesics. After a period of some weeks, electrical stimulation again afforded analgesia. When placed on an intermittent schedule of stimulation, pain relief did not decline. In all instances, relief from the chronic pain outlasted the period of stimulation, but there was generally good sensitivity for acute pain stimuli, such as the prick of a pin. Naloxone, given intravenously, in low doses, caused the total reversal of analgesia in five patients. In the sixth, the patient with partial pain relief, naloxone did not reduce the analgesia. In combination with the earlier evidence that these sites are rich in endogenous opioid peptides, and their receptors, this study offered strong support for the theory that the electrical stimuli were releasing endogenous opioid peptides.

Endogenous Opiates, Acupuncture and Hypnosis, Nitrous Oxide

Analgesia can be produced by other drug-free methods, including acupuncture and hypnosis. It is also produced by inhalation of nitrous oxide. Investigators have sought to determine whether these methods of inducing analgesia activate endogenous opioid systems.

There have been two attempts made to see if analgesia induced by hypnosis could be reversed by naloxone. The first of these, by Goldstein and Hilgard, was performed on three volunteers⁴⁰. The pain stimulus was ischemia after exercise, which produced severe pain and distress within a few minutes. Hypnosis produced a potent analgesia which was not influenced by naloxone. Barber and Mayer, two years later, examined hypnotic analgesia in a larger group of volunteers⁴¹. Electrical stimulation of tooth pulp was used to determine pain sensitivity. The subjects were hypnotized following the establishment of baseline responses. They were told that post-hypnotically, in a further test, they would feel the pressure of the probe against the tooth, but there would be no other feelings to disturb them. Subjects appeared awake and alert during the experiment.

They did not experience pain when the highest stimulus was applied, and naloxone had no effect on this analgesia. Thus, it would seem from these studies that analgesia produced by hypnosis can be profound, but the available evidence does not support an activation of opioid peptides during hypnosis-induced analgesia.

Mayer examined the effect of naloxone on acupuncture analgesia, again using tooth pulp stimulation as the aversive stimulus⁴². Acupuncture analgesia was induced with needles inserted into the "ho-ku" points, the needles being rotated for two minutes every five minutes over the next half hour. Typically, the subjects found this to be painful, but the pain stopped soon after the twirling ceased. Acupuncture raised the pain threshold far beyond that of the control group. Naloxone, but not saline, reduced the pain threshold to approximately the level of the control group after about five minutes. Mayer and his colleagues suggested that acupuncture treatment causes the release of an endogenous substance, with narcotic analgesic activity, within the central nervous system, rather than at the site of application of acupuncture. This preference for a central rather than a peripheral mechanism for acupuncture analgesia was based on some earlier studies⁴³. These showed that acupuncture analgesia does not involve the release of a local substance, being unaffected by vascular occlusion. On the other hand, acupuncture analgesia requires an intact neural afferent, for it could not be established when the innervating peripheral nerve was desensitized by procaine. Chapman and his associates could not reproduce the results of Meyer⁴⁴. In their study, analgesia was produced by acupuncture treatments using electrically-stimulated needles, but naloxone was without affect.

Nitrous oxide is one of the oldest synthetic drugs and it has long been used in dentistry. Recognition of its euphoric and analgesic properties predate its use for extractions. Berkowitz and his colleagues exposed mice to differing concentrations of nitrous oxide and then determined levels of analgesia⁴⁵. It was found that nitrous oxide was an analgesic, in the mice, in the 40-80 per cent concentration range that shows effect in man. Surprisingly, naloxone was able to reduce the effectiveness of the nitrous oxide-induced analgesia, suggesting that the analgesic affect may arise from an activation of endogenous opioids. However, a recent study, by Levine, was conducted to see if naloxone could reduce the analgesia produced by 33 per cent nitrous oxide in patients recovering from the removal of impacted third molars⁴⁶. It did not appear to do so. The mild degree of analgesia

produced by the gas was not influenced by the narcotic antagonist.

These apparently inconsistent results may or may not reflect differences in experimental procedures, species and subject selection, or the use of various doses of naloxone to challenge induced analgesia. Investigators have discovered some interesting facts about non-opiate methods of causing analgesia, but the final chapters implicating endogenous morphine-like agents in these processes, as in the pathophysiology of pain itself, have yet to be written. In addition, the neurochemical mechanisms that underlie non-pharmacological analgesic procedures that are only effectively established in humans, like hypnosis, appear to be beyond present means of investigation.

Endorphins as Analgesics

Although the role played by neuronal enkephalins or endorphins during manipulations causing pain or analgesia remains uncertain, there is little issue with the benefits that accrue when morphine or its analogues act upon opiate receptors to relieve pain. Could the endorphins and enkephalins produce the same effects if release occurred from endogenous stores? Beta-endorphin might well do so, for tests have shown that it is as much as 200 times more potent than morphine when administered into the central nervous system of animals⁴⁷. Being a peptide of some size (thirty one amino-acid residues), it would not be expected to cross the blood-brain barrier easily and, in fact, it is much less potent when given parenterally. Nonetheless, some studies, in animals, report that intravenous injections have caused analgesia^{16,48}, but this was not found in man⁴⁹. Investigations have shown that beta-endorphin is slowly degraded by enzymes in brain tissue, by endopeptidases, that generate primarily the other, shorter, analgesically less potent alpha- and gamma-endorphins⁵⁰. These metabolites are of such lower potency the metabolic process could be regarded as a deactivation of the beta-endorphin. The enkephalins differ in terms of potency, and in their duration of action. Quite high doses of these were required to produce analgesia, following injection into the central ventricles, and the analgesia was of short duration⁵¹. The enkephalins, in contrast to beta-endorphin, are quickly metabolized by tissue-bound enzymes. Studies examining other properties of enkephalins and endorphins have shown that narcotic dependence can occur if the peptides are administered chronically to animals^{52,53}. Furthermore, tolerance and cross-tolerance to therapeutic narcotic analgesics can be achieved in this way⁵⁴.

New Approaches to Analgesic Drugs

Despite evidence that opioid peptides may not have advantageous properties over the recognized narcotic analgesics, numerous peptides have been synthesized in order to examine the components of the molecules that contribute to their activities. It was soon evident that there was a prime requirement for the terminal tyrosine amino acid, but, within limits, the remaining four amino-acids in the enkephalins could be changed. Some substitutions were able to protect the pentapeptide from rapid enzymatic degradation, which translated into the appearance of high analgesic potency. For example, one of the modified pentapeptides, (D-Ala)²-(Me-Phe)⁴-(Met-(O)-ol)⁵, is several hundred times more potent than morphine and met-enkephalin in certain tests. This substance is resistant to degradation, but is modified, additionally, to be able to cross through cell membranes. This adapted enkephalin is an potent analgesic after oral administration⁵⁵. Other synthetic analogues are mixtures of enkephalin amino-acids and more unusual chemical components⁵⁶. Undoubtedly, several novel substances, based on the enkephalin structures will be introduced as analgesics, but whether they will possess real advantages over drugs used presently will have to be determined.

Enzyme inhibitors are employed as drugs when they are able to promote a desirable pharmacological effect through suppressing the degradation of an endogenous substance. This concept is being extended currently to studies of enkephalins and analgesia. The enzyme inhibitors which have received attention include bestatin, puromycin, thiorphan, D-leucine and D-phenylalanine^{57,58}. These drugs potentiate the effects of enkephalins in animal tests, and D-phenylalanine has been examined in humans, where it has shown distinct promise⁵⁹. This stereochemically unnatural amino-acid is a weak inhibitor of one of the enzymes that metabolizes enkephalins. Studies, in animals, demonstrated that it had analgesic properties that were reversed by naloxone. It did not produce analgesia quickly; it could take several days of treatment before pain thresholds changed. Brain levels of enkephalins increased when the drug was given. There was no evidence of toxicity to the substance after acute or chronic treatment⁶⁰. Because of its lack of toxicity Balogot and his colleagues thought it worthwhile to test the amino-acid in volunteer patients from a pain clinic, who suffered from chronic, intractable pain, the majority having osteoarthritic disease of the lower back⁵⁹. The first study was an open trial for there was no placebo group. As they

continued in the study regular medications were slowly withdrawn. A second study involved a double-blind, crossover study. Patients received either placebo capsules, or capsules of the amino-acid, one hour before they were given acupuncture therapy.

Side-effects of headache, nausea and drowsiness were reported by small numbers of patients. The drowsiness was mild and dissipated even though drug treatment continued. Headache occurrence seemed to be related to dose, although some patients reported that the drug ameliorated headaches. One patient developed a rash that was treated with an antihistamine cream. This patient continued to take the drug as he obtained good pain relief, as did many others. The pain relief response achieved significance over two to five weeks of treatment, although patients with severe pain did not respond well. The analgesic response was duplicated in the second trial. Better analgesia was reported after patients were given D-phenylalanine before acupuncture, than when they had taken placebo.

This human trial, with a virtually innocuous inhibitor of enkephalinase, would seem to hold some promise. The reason for the slowness of the effect may relate to the time required to achieve effective concentrations to inhibit enzymes, or to obtain an accumulation of enkephalins sufficient to produce pain relief; assuming of course that the endogenous opiate system was mediating the effect. The investigators reported that four of the patients had continued to take D-phenylalanine for three to four years. Collectively, they had stopped receiving transcutaneous stimulation therapy and taking their other drugs: acetaminophen, diazepam, codeine, oxycodone, cortisone. The dose of D-phenylalanine had been reduced and there was no sign of tolerance or dependence. It is too early to predict how this novel venture into pain relief by indirect facilitation of enkephalins will fare as other inevitable and necessary studies take place. It is safe to say, however, that researches into pain, in association with endogenous morphine-like substances and drugs that act on their receptors and enzymes hold out the promise of real improvement in analgesic treatments in the near future.

SUMMARY

Identifications of endorphins and enkephalins have caused, over the past decade, a flurry of investigations seeking to resolve whether or not they act as endogenous modulators of pain, whether they can be activated to become analgesics, whether their degrading enzymes can be tempered so that the release of endogenous morphine-like peptides can be amplified to produce

relief from pain, whether analogues can be created which are better analgesics than those currently available. Despite the limitations imposed by the use of the imperfect, investigational drug, naloxone, the results of studies suggest that the endogenous opioids play a role in diurnal variations in pain threshold, and they appear to have analgesic value when pathological pain is present. There could then be merit in new drugs able to preserve secreted enkephalins by inhibiting their degrading enzymes. Additionally, modifications of endogenous peptides, with the production of enzyme-resistant forms able to gain access to the body after oral ingestion, should lead to many novel substances with the potential for use in the treatment of acute and chronic pain conditions. Such new drugs are likely in the near future. More distantly, the realization that potent analgesia can be produced by non-drug means, such as hypnosis and acupuncture, which may occur independently of effects of endogenous opioid peptides, will test the ingenuity of investigators. While the pursuit of these will be difficult, the ultimate purpose, to understand the phenomenon of pain and apply this information to its amelioration, will continue to be a challenge to basic and clinical scientists.

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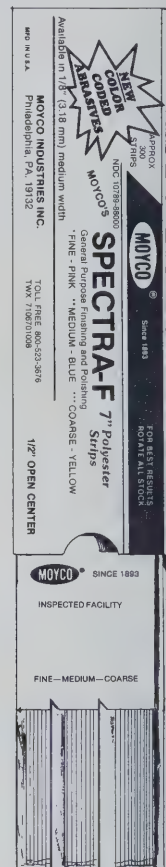
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A 1985 UPDATE ON AIDS

J. Hardie, BDS, MSc, FRCD(C)

INTRODUCTION

The Acquired Immunodeficiency Syndrome (AIDS) was initially reported in the United States in June 1981, and in Canada in February 1982. In August 1983 this Journal published an article¹ which described the significance of AIDS to the dental profession. Subsequently a number of articles^{2,3,4} have stressed the infectious nature and oral manifestations of the syndrome, and have emphasized the precautions to be adopted by dentists treating AIDS patients.

Recent investigations of AIDS have accumulated additional information on its probable cause, mode of transmission, and susceptible populations. This update will discuss these factors with consideration being given to the oral and dental implications of the syndrome.

Characteristics of Aids

The Centers for Disease Control in the United States have defined AIDS as an acquired immunodeficiency characterized by severe opportunistic infections, especially *Pneumocystis carinii* pneumonia (oral candidiasis and herpetic infections are common), and/or Kaposi's sarcoma.⁴ Among AIDS patients there may be an increased incidence of B-cell lymphomas⁵, primary lymphomas of the CNS⁵, and squamous cell carcinomas of the oral cavity and anus⁶. AIDS occurs predominantly in 20-49-year-old males⁵.

The laboratory features of AIDS reflect the immunodeficient state and include: a severe deficiency of cellular immunity with a reduction in the T-helper to T-suppressor cell ratio with a definite numerical reduction in the T-helper cell population, elevated levels of IgG, IgM, and IgA, and an associated acquired B-cell immunodeficiency⁵.

Apart from evidence of severe opportunistic infections and malignant disease, the clinical signs usually include: an extreme malaise, fever or chills, rapid weight loss, night sweats, a dry cough, and general lymphadenopathy⁵. Patients with these clinical and laboratory manifestations who are members of high risk groups⁵ — (homosexual and bisexual males with

multiple sexual partners — 70 per cent, past or present I.V. drug abusers — 18 per cent, Haitian immigrants — 4 per cent, and haemophiliacs — 1 per cent), or the sexual partners of the high risk group members — must be treated with a healthy suspicion by all clinicians.

To date, there is no effective therapy to correct the immunologic deficiency and the two year mortality rate, because of opportunistic infections or malignant disease, is 70 per cent⁵. As of March 1985, 196 AIDS cases had been reported in Canada, out of which 105 patients had died⁷. Interestingly, the Canadian experience for high risk groups differs from the previously quoted United States statistics. The proportions of homosexual/bisexual males is the same at 70 per cent of cases, while only one case associated with I.V. drug abuse has been reported⁷. In addition, Haitian immigrants account for 20 per cent of confirmed Canadian cases, with only three cases being considered due to blood transfusions or the receipt of blood products⁷.

Aids — Related Complex (ARC)

The AIDS — Related Complex (ARC) — also called the lymphadenopathy syndrome, AIDS prodrome, or pre-AIDS — is a combination of unexplained chronic lymphadenopathy, systemic symptoms such as malaise, fever, chills, rapid weight loss, night sweats, dry cough, and immunologic discrepancies (all of which are very similar to those experienced by AIDS patients) occurring in members of the high risk group for acquiring AIDS. It is important to stress that ARC patients do not exhibit the overt clinical signs of AIDS i.e. Kaposi's sarcoma, and severe opportunistic infections. However, oral candidiasis⁷ is not uncommon. It is expected that, at least 20 per cent of ARC patients will subsequently develop AIDS.

Etiology

Recent investigations in France and the United States^{5,7} have demonstrated that a retrovirus is the probable cause of AIDS. The virus has been identified as the human T-cell lymphotropic virus type 111 (HTLV-111) or the lymphadenopathy asso-

ciated virus (LAV). Authorities now consider these two viruses to be identical⁷. The HTLV-111 has a cytotoxic effect on the T-helper cells⁷ thus inducing the severe immunodeficiency states associated with AIDS. The HTLV-111 has been recovered from the peripheral blood lymphocytes, seminal fluid, and saliva of AIDS and ARC patients. The majority (88 per cent) of AIDS patients in Canada and the United States^{5,7} have developed antibodies to the HTLV-111 antigen. This is valuable proof for suggesting that the virus has an essential role in the etiology of AIDS.

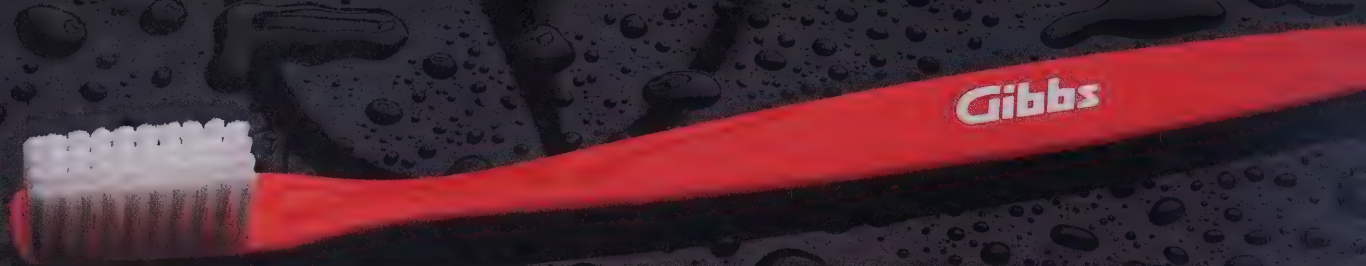
Epidemiology

The high risk groups have previously been identified in the section on the characteristics of AIDS. As of December 1984, 7,270 cases of AIDS resulting in 3,499 deaths had been recorded in the United States. In Canada, as of March 1985, 196 cases have been reported with a geographic distribution of: Ontario 40 per cent, Quebec 34 per cent, Western Canada 23 per cent, and the Atlantic Provinces 3 per cent.

The major methods of contracting AIDS in the homosexual/bisexual group are many different sexual partners and receptive anal intercourse⁷. Heterosexual practices may transfer AIDS out of the high risk group, however this method of transmission does not appear to be increasing⁷.

Communal needles and hence shared blood products are the likely cause of the high incidence of AIDS among I.V. drug abusers⁵, although, as stated previously, the Canadian experience of AIDS among I.V. drug addicts is rare⁷. Heterosexual transmission among Haitians is considered as the probable cause for AIDS in this group which accounts for 20 per cent of the reported Canadian cases⁷.

Although the acquisition of AIDS via blood transfusions is a distinct possibility, to date only one Canadian case has been reported⁷. During the past three years, only two cases of AIDS have occurred among approximately 1,500 Canadian haemophiliacs⁷. While some haemophiliacs demonstrate ARC and may be positive for antibodies to HTLV-111, they should



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not reduce the levels of coagulation factors, as the risk of uncontrolled bleeding is greater than that of developing AIDS⁷.

The present understanding is that AIDS is not transmitted via casual non-sexual contact. This concept is supported by the absence of AIDS among health care workers who are not members of the high risk groups^{5,7}. AIDS transmission probably requires percutaneous inoculation of infected material, or the direct contact of blood or blood containing secretions with mucosal surfaces⁵. Infected material includes, blood, urine, feces, semen and saliva, while the mucosal surfaces liable to be contaminated are those in the mouth, nose, and eyes⁵. If direct contact might occur, health care workers are advised to wear gloves, gowns, masks, and goggles⁵.

An effective vaccine against AIDS and the development of satisfactory treatment for the syndrome are unlikely events in the near future⁷. Therefore prevention of AIDS is of paramount importance.

Recommended procedures are:

- Homosexual males should use condoms, and reduce the number of different sexual partners.
- Members of high risk groups should be encouraged not to donate blood.
- Health care workers should perform appropriate infection control procedures

when treating AIDS patients, or conducting laboratory procedures for such patients⁷.

Incubation and Infectivity

The incubation period of AIDS may vary from two months to five years⁷, and it is probable that preclinical or subclinical forms of AIDS exist⁵. In this regard AIDS is not unlike other viral infections. Currently there is no readily available laboratory test for detecting the AIDS antigen, i.e. HTLV-111. The present technology is able to identify the antibody to HTLV-111. It must be appreciated that the presence of the antibody *does not* imply immunity to AIDS or a lack of ability to infect others⁷ nor is it prognostic for AIDS or ARC. Antibodies to HTLV-111 have been detected in the serum of a large proportion of individuals belonging to the high risk groups. The significance of this finding is that such patients may:

- Have symptomatic AIDS or ARC.
- Be incubating the virus and subsequently develop overt AIDS or ARC.
- Be asymptomatic carriers.
- Be potentially infectious.

Because of these variables and the absence of a suitable test to detect the active virus, all individuals with antibodies to HTLV-111 must be considered potentially infectious⁷.

AIDS and Hepatitis B Vaccine

Prior to the identification of the HTLV-111, it was surmised that the purification and inactivation procedures used in the production of the hepatitis B vaccine would destroy the agent responsible for AIDS^{9,10}. The identification of HTLV-111 has confirmed this theory^{7,8}, therefore it can be assumed that hepatitis B vaccine will not transmit AIDS.

AIDS and Dentistry

The recent advances in understanding AIDS have provided information which is relevant to dentistry.

High Risk Groups

Canadian studies have shown that 15-30 per cent of homosexual males⁷, who have neither AIDS or ARC, have antibodies to HTLV-111 and are therefore potentially infectious. The high risk patients are often prone to other diseases such as, hepatitis B, herpes, and candidiasis⁷. These facts support the contention that dentists should enquire about the life-style and social history of their patients. The difficulties which dentists may have in discussing sexual issues and drug use with patients may be relieved by adopting non-judgemental atti-

tudes. Dentists, who have unresolved reservations about the social or sexual proclivities of their patients, should refer such persons to an interested physician or a hospital based Infectious Disease Department.

Oral Routes or Transmission

Blood from dental procedures could transmit AIDS to dental personnel who have open cuts or abrasions on their fingers or hands. Blood containing aerosols could contaminate the eyes, nose, and mouth of dentists and their staff. Although HTLV-111 has been identified in saliva, the U.S. Public Health Service and the American Dental Association are of the opinion that saliva is an unlikely route of transmission.⁸ Another author states that the fluids and secretions associated with dentistry present a significant risk for the transmission of AIDS³. To date, no cases of AIDS have been reported in dental staff who were not members of high risk groups, however the long incubation of the virus may be delaying the appearance of symptoms among dental personnel. Until more is known about the exact routes of transmission, dental workers should adopt the recommended precautions for all suspected patients.

Precautions

At present no specific precautions against AIDS have been established for dental staff³. The most appropriate guidelines to follow are those which have been developed for hepatitis B transmissions^{5,7}. These precautions have been described in the Canadian Dental literature by Main and his colleagues in 1982¹¹, and summarized by Hardie in 1983¹. Davis³ has recently provided a comprehensive review of the protocols to be adopted when providing dental care to AIDS patients. However, these are similar to the procedures recommended for hepatitis B patients. Modification of the guidelines may be required when the properties and characteristics of HTLV-111 have been further elucidated.

Oral Manifestations

The characteristic oral sign of AIDS is the appearance of Kaposi's sarcoma. This usually occurs on the hard palate as red, blue, or purple modules⁴. By definition such patients will usually have other clinical manifestations of AIDS. Oral Kaposi's sarcoma in a high risk group patient is virtually pathognomic of AIDS⁴. Of perhaps greater significance to the dentist is a recent study¹² which suggests that unexplained

oral candidiasis especially in the high risk groups may be an important manifestation of the prodromal phase of the disease. Other oral manifestations of AIDS include *herpetic infections*, *leukoplakia*, and *oral squamous cell carcinomas*^{4,6}. In fact, 95 per cent of ARC and AIDS patients may have head and neck manifestations. Obviously dentists should maintain a continual vigilance for these oral signs and symptoms; and be prepared to refer high risk patients for appropriate medical investigation. To date, there has been no documentation that AIDS patients are prone to severe exacerbations of dental disease such as gingivitis, periodontitis, or septic sockets. It may be that such patients who are, in reality, in the terminal phase of the disease, are too ill to attend for routine dental treatment.

Dental Treatment

AIDS patients should be treated after consultation with the attending physician. It is probable that most dental care will be palliative, however every encouragement must be given to the maintenance of adequate oral hygiene. The mouth is a portal of entry for some of the opportunistic infections associated with AIDS, therefore it is a valid endeavour to emphasize oral

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hygiene and dental care to all high risk groups.

Patients with antibodies to HTLV-111 who are asymptomatic for AIDS or ARC, should be able to receive routine dental care, provided the physician is aware of the nature of the treatment, and the dental staff initiates the appropriate precautions.

SUMMARY

A retrovirus called the human T-cell lymphotropic virus (HTLV-111) is considered to be a major etiologic factor in the acquired immunodeficiency syndrome. The high risk groups for AIDS in Canada differ from the United States experience. The appearance of oral candidiasis in an otherwise healthy adult may be an early manifestation of the disease. Dentists should be prepared to enquire about the lifestyle of their patients, and to adopt the appropriate precautions when treating susceptible individuals. The dental staff should be aware that healthy patients could be asymptomatic carriers of the causative virus. This implies that all personnel should be continually aware of the need to practice effective infection control, which would include acceptable sterilization procedures, and the routine use of masks, eyeglasses and gloves.

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METHYL METHACRYLATE IS IT SAFE?

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ABSTRACT

Although methyl methacrylate has established applications in medicine and dentistry, its safety as a bone cement has recently been questioned. There is little information concerning the potential toxic effects of methyl methacrylate in the dental environment. This article reviews the laboratory and clinical investigation of methyl methacrylate toxicity. Proper handling of methyl methacrylate in well ventilated rooms would appear to reduce the danger of toxic side effects.

SOMMAIRE

Bien que le méthacrylate de méthyle soit utilisé en médecine et en dentisterie, on se demande depuis peu si c'est un produit sûr comme ciment pour les os. Il se peut en effet que ce produit soit toxique dans le milieu dentaire et on est mal renseigné à ce sujet. Cet article porte sur les études qui ont été faites en clinique et en laboratoire touchant les pouvoirs toxiques du méthacrylate de méthyle. Pour réduire les risques, il paraît indiqué de manipuler ce produit avec précaution dans une pièce bien aérée.

INTRODUCTION

Methyl Methacrylate monomer is a clear liquid which is readily polymerized to form polymers and copolymers used in the production of plastics, dental prostheses, and surgical implants. The toxic effects of methyl methacrylate (MMA) were initially reported by Deichman¹ in 1941. Since then numerous studies have linked the use of MMA as a bone cement in hip and other joint replacements to; hypotensive episodes², cardiac arrests³, fat embolism⁴, cerebral infarction⁵, and pulmonary embolism⁶. The local effects of MMA as a surgical cement have

included arterial occlusion⁷ and arterial perforation⁸. Recent reports have discussed the late complications of hip replacement using a bone cement⁹ and associated systemic problems¹⁰, however another investigation¹¹ suggests that the effects of MMA on the respiratory and hemodynamic systems may be related to the use of powerful inhalation anaesthetic agents. Thus while there may be some controversy regarding the cause and effect of MMA as a surgical implant, there is no doubt that its use may be potentially hazardous to the patient.

The toxic effects of MMA are not confined to local and systemic manifestations experienced by patients but have been reported in; operating room personnel¹², dental laboratory technicians¹³, and manufacturers of acrylics¹⁴. Handlers of MMA during the mixing phase may be exposed to toxic substances by inhalation of the vapour or by cutaneous contact. Dental personnel prepare MMA for cold cure denture relines, for splints, and T.M.J. appliances, therefore they are exposed to the potential toxic effects of methyl methacrylate.

This article will describe the laboratory and clinical studies pertinent to the toxicology of MMA, and discuss how safe it is for regular use in the dental office.

LABORATORY AND CLINICAL STUDIES

Definitions

Certain terms are used in the investigation of potentially harmful substances.

1) THRESHOLD LIMIT VALUE – TIME WEIGHTED AVERAGE (TLV-TWA)

– is the time weighted average concentration for a normal 8 hour workday and

a 40 hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

2) THRESHOLD LIMIT VALUE – SHORT TERM EXPOSURE (TLV-STEL)

– is the concentration to which workers can be exposed continuously for a short period of time without suffering from; irritation, chronic or irreversible tissue damage, or narcosis, which may induce self injury or reduce work efficiency. The STEL should not exceed a 15 minute exposure, should not be repeated more than four times per day, and must have at least 60 minutes between each exposure. The American Conference on Governmental Industrial Hygienists has set values on the exposure of MMA vapour based upon levels which are sufficiently low to prevent either systemic toxicological effects or discomfort from irritation in workers chronically exposed to the vapour¹⁵. The levels for MMA are:

- i) TLV-TWA of 100 ppm (or 410 mg/m³)
- ii) TLV-STEL of 125 ppm (or 510 mg/m³).

LABORATORY INVESTIGATIONS

The early research by Deichman¹ and Spealman¹⁶ demonstrated that MMA was an irritant to the skin and mucous membranes of rabbits and rats. They showed that MMA produced lung congestion, and liver and kidney degeneration in a number of experimental animals. A more recent study by McLaughlin¹⁷ could find no histopathologic changes in the lungs, liver, heart and kidney of mice exposed to 1,500 ppm of MMA vapour twice per day for 10 days. This study was devised to

maintain normal concentrations of O₂ and CO₂, thus eliminating alterations in these gases as the cause of systemic injury. The absence of histopathologic changes noted by McLaughlin was similar to the results obtained by Tansy¹⁵, who in 1979 published an update on the toxicity of inhaled MMA vapour after having performed numerous experiments on different laboratory animals. Tansy¹⁸ and his co-workers were able to produce abrupt cessation of gastric pressure activity and a fall in gastric tonus in rats but only after excessive exposure to MMA vapour ranging from 1,000 mg/m³ to 93,600 mg/m³. An experiment devised by Blanchet¹⁹ and his colleagues was able to induce alterations in respiratory and cardiac rates accompanied by increases in systolic blood pressure in rats exposed to vapourized MMA for 20 minutes daily for 21 and 42 days. However, this experiment did produce alterations in the O₂ and CO₂ concentrations, and the dose of MMA received by the animals was not recorded.

There have been few investigations of the carcinogenic potential of MMA. Poss²⁰ found that MMA is a mutagen for the salmonella typhimurium and suggested that it is a possible carcinogen. Laskin²¹ and Oppenheimer²² inserted poly methyl methacrylate film into the lateral abdominal wall of test animals and produced a 20-25 per cent incidence of fibrosarcoma.

Tansy¹⁵ exposed pregnant mice for 60 hours to levels of 116 ppm and 400 ppm of MMA vapour in air, and concluded that the exposure had no teratogenic effects on the fetuses. McLaughlin²³ reported similar negative teratogenic effects.

CLINICAL INVESTIGATIONS

As indicated in the introduction many of the human studies have concentrated upon the systemic and local consequences of employing MMA as a surgical cement in hip and other joint prostheses. The cause and effect relationships have generated considerable controversy and have still to be clarified.

There is no doubt that MMA can produce local toxic effects in the oral cavity. Allergic stomatitis due to MMA toxicity has been discussed by Giunta²⁴ and Weaver²⁵. Cutaneous contact with MMA has resulted in peripheral neurotoxicity in the digits of dental technicians¹³. There are anecdotal reports of dental students feeling nauseated during and after exposure to MMA vapour¹⁸. Correspondence in the medical literature¹² indicates that on exposure to MMA vapour, operating room personnel experienced dizziness, dyspnoea, nausea and vomiting during and after total hip

replacements. Recent correspondence²⁶ in the dental literature suggests a possible relationship between the use of self-curing acrylic resins and toxic hepatitis.

In 1976 the National Institute for Occupational Safety and Health which is a Department of Health Education and Welfare, U.S.A., prepared a major report on the Study of Methyl Methacrylate Exposure and Employee Health¹⁴. To date this is the most comprehensive investigation of handlers of MMA published in the English literature. The study involved an initial screening to determine the level of MMA vapour in 27 establishments including eight dental laboratories where MMA is manufactured or polymerized. Workers in the production of sheet MMA were exposed to relatively high doses with a TWA in the range 5-50 ppm, and were subjected to detailed investigations. The dental technicians on average had a low dose of MMA vapour with a TWA of less than 5 ppm, and were excluded from further study.

The workers manufacturing MMA sheets had no significant acute effects as measured by symptomatology, blood pressure, respiratory function, hemoglobin, white blood cell count and urinalysis. While there were some cutaneous and neurological alterations and variations in serum triglycerides and urinalysis findings, the investigators did not consider such changes to be statistically significant. The authors of this detailed report¹⁴ were adversely critical of a number of Russian studies which suggest that exposure to MMA vapour in concentrations considerably less than 100 ppm produces headaches, fatigue, irritability and tearing of the eyes. However, a recent Polish investigation²⁷ in which workers were exposed to relatively low doses of MMA i.e. 0.20 - 382.2 mg/m³, states that minimal concentrations of MMA in the industrial environment may provoke chronic obstructive lung disease.

DISCUSSION

The possible toxic effects of methyl methacrylate upon the oral mucosa have been established for some time. However, there has been little appreciation in the dental literature of the potential harmful effects of inhaling MMA vapour or of cutaneous absorption during polymerization.

The threshold limit value - time weighted average for MMA has been established as 100 ppm or 410 mg/m³. This figure would appear to have some justification based upon laboratory investigations which demonstrate, in well controlled experiments, minimal histopathologic or physiologic alterations even to excessive doses of MMA vapour. The laboratory conditions in which MMA initiates fibrosarcomas are

unlikely to be duplicated in humans, and unless the two year Toxicology Program proves otherwise there is currently no epidemiologic or experimental evidence to suggest that MMA vapour has mutagenic properties in mammals. The negative teratogenic effects of MMA inhalation have been demonstrated by Tansy¹⁵ and McLaughlin²³. However, the major study on MMA exposure and employee health¹⁴ did not include females, and to date the specific effects of MMA vapour upon human fetuses have not been investigated. Methyl Methacrylate monomer has a distinctive pungent smell with an odour threshold of less than 1 ppm which may account for the reports of dizziness, nausea, vomiting and tearing among dental students¹⁸ and operating room personnel¹². These side effects can be prevented by adequate ventilation, in fact, forcibly exhausting the vapour from around the mixing area can obtain a low TWA of 0.53 ppm for three hours with peaks of 0.8 ppm for two minutes and 4.4 ppm for one minute during the mixing procedure²⁸. McLaughlin²³ found that ventilation reduces the MMA vapours from a concentration of 225 ppm during mixing to 5 ppm six minutes after mixing. The dentist²⁶ with a diagnosis of toxic hepatitis had been working in a poorly ventilated area. He found that wearing a mask which filters organic materials resulted in an improvement in his liver disease. In fact the American Dental Association Council on Dental Materials, Instruments and Equipment²⁶ recommends that all potentially hazardous organic chemicals such as, benzene, formaldehyde, ethylene oxide and methyl methacrylate, be used in well ventilated areas. In addition the Council suggests that all dental personnel have periodic respiratory, liver, and kidney function tests.

The recent report describing axonal degeneration in the fingers of dental technicians¹³, and the known local stomatological toxicity of dental plastics^{23,24}, suggest that MMA may produce harmful side effects by absorption via cutaneous and mucosal surfaces. These side effects may not be due to MMA but to the release of formaldehyde during the processing of heat cured, cold cured, or pour-type of denture base resins²⁹. Cutaneous absorption among dental personnel could be reduced by handling and mixing MMA with gloved hands. Disposable polyethylene gloves would probably be more effective than those made of rubber or polyvinyl chloride materials.

The 1976 study on MMA exposure and employee health¹⁴ reveals no statistically significant effects upon workers exposed to MMA levels in the 5-25 or 25-50 ppm ranges. While this is additional justification for a TLV-TWA of 100 ppm the report does

not attempt to correlate death due to cardiac, respiratory or malignant disease with exposure to MMA, nor does it address the effects of long term contact with MMA. The dental technicians who were initially screened in this study¹⁴ had exposure levels of less than 5 ppm. However, it cannot be extrapolated that all dental personnel are exposed to low levels until comprehensive testing is performed on a variety of dental establishments such as, dental schools, private offices and dental laboratories.

Although the Russian investigators¹⁴ suggest a 2.5-12 ppm threshold level for MMA exposure, there is no laboratory or clinical evidence in the English literature to refute a TLV-TWA of 100 ppm. Reactions to potentially toxic substances are idiosyncratic, therefore some dental personnel may suffer acute or chronic disturbances from low levels of exposure to methyl methacrylate. The acute effects may include, dizziness, headache, tearing, dyspnoea, nausea and vomiting, while the chronic effects may be more insidious and include respiratory, liver, kidney, neurological and cardiac degenerations.

Based upon the current information it is unlikely that dentists or their staff should suffer short or long term effects from MMA exposure if they handle and mix MMA in well ventilated areas, and wear masks and gloves. Sufferers of acute toxicity should adopt these preventive measures, and determine the levels of MMA exposure. Dental personnel with poorly defined long term illness should consider the possibility of chronic MMA poisoning. This will necessitate at least kidney, liver and respiratory function tests, plus determination of the levels of methyl methacrylate vapour in the working environment.

Dentists must maintain a healthy respect for the drugs and chemicals which they use on a daily basis. A knowledge of the potential toxic effects of these materials often allows relatively simple precautions to be adopted for the benefit of dentists, their staff, and patients. If this attitude is adopted for methyl methacrylate there is no reason to believe that it is not safe in the dental environment.

NOTE: Information on testing for methyl methacrylate exposure levels may be obtained from —

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ADDENDUM: Since completing this report, the author has obtained the results of a study by the Occupational Health and Safety Resource Centre. Centre personnel demonstrated that a dental assistant at the Ottawa Civic Hospital had a TLV-TWA of 0.04 ppm of MMA during the production of acrylic splints. This figure is considerably less than the accepted safe level of 100 ppm.

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3. The use of precapsulated alloy and mercury is highly recommended to eliminate the possibility of spills during the handling of bulk mercury;
4. Bulk mercury should be kept in its original container which should be tightly closed and stored in a cool place;
5. All operations involving mercury should be carried out over smooth, lipped surfaces to confine mercury spills and aid in their recovery;
6. Flooring in dental operatories should be smooth and be free of joints. Carpeting is contraindicated in operatories because it is impossible to decontaminate once mercury has penetrated it;
7. All mercury spills should be picked up as soon as possible;
8. Mercury dispensers should be handled with extreme care and discarded if they leak;
9. Reusable capsules can deteriorate with use and should be replaced regularly;
10. An amalgamator with completely enclosed arms and capsule is preferred. The amalgamator should be placed in a location or over a device which permits easy clean up of mercury that escapes during trituration;
11. The interior surfaces of the amalgamator are a major source of mercury contamination and should be wiped clean;
12. The use of face masks is desirable; these should be discarded once contaminated;
13. Ultrasonic condensing techniques are contraindicated;
14. Water spray and suction are required during the grinding or cutting of silver amalgam;
15. Amalgam which requires heating should not be used;
16. All used mercury and amalgam scraps should be sorted under mercury vapour suppressing liquids – or when these are not available, x-ray fixer – in a tightly closed container for proper disposal;
17. Do not allow mercury or mercury contaminated wastes to be dropped in the drain or sewer since this contributes to the ecology problem associated with mercury;
18. Smoking immediately after or during the handling of mercury will increase the uptake of mercury;
19. Air filters in recirculating ventilation systems should be changed regularly;
20. Do not use vacuum cleaners in areas where mercury is handled. They increase the contamination by recycling the mercury into the atmosphere;
21. Periodic mercury vapour level determinations should be made in operatories;
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2. Le mercure pénètre dans la peau. Pour cette raison, on ne doit jamais manipuler du mercure directement.
3. On recommande vivement d'utiliser des alliages et du mercure en capsule; lorsqu'on manipule du mercure en grande quantité, on risque toujours d'en renverser.
4. On doit toujours conserver le mercure en grande quantité dans son contenant original qu'il convient de fermer hermétiquement et de ranger dans un endroit frais.
5. Toute manipulation de mercure doit se faire au-dessus d'une surface lisse ayant des rebords et capable de retenir les fuites afin de faciliter leur récupération.
6. Le plancher des salles d'opération doit être parfaitement lisse et ne comporter aucune rainure ou articulation. Tapis et moquettes sont déconseillés parce qu'il est impossible de les décontaminer une fois que du mercure y a pénétré.
7. Lorsqu'on renverse du mercure, on doit le récupérer le plus tôt possible.
8. On doit manipuler avec grand soin les distributeurs de mercure et les jeter s'ils fuient.
9. Les capsules à usages multiples peuvent se détériorer et on doit les remplacer régulièrement.
10. Il convient d'utiliser un vibreur d'amalgame avec bras et capsules complètement emboîtés. On doit placer le vibreur d'amalgame à un endroit ou au-dessus d'un

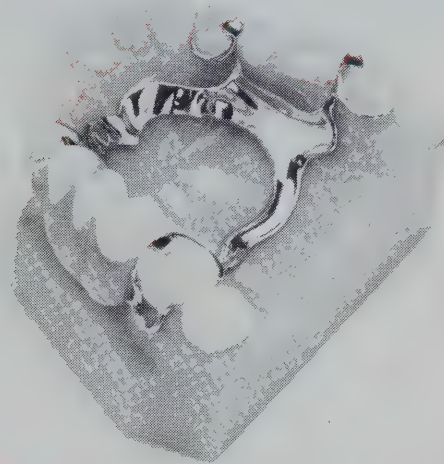
dispositif facilitant le nettoyage du mercure qui s'échappe durant la trituration.

11. Les surfaces internes du vibreur d'amalgame sont particulièrement susceptibles de causer une contamination par le mercure et doivent être bien essuyées.
12. Il convient de porter des masques et de les jeter quand ils sont contaminés.
13. Il est déconseillé d'utiliser des méthodes de condensation ultra-sonique.
14. On doit utiliser un vaporisateur et un aspirateur d'eau durant le meulage ou le cisèlement d'un amalgame d'argent.
15. On ne doit pas utiliser d'amalgame qu'il faut chauffer.
16. Afin qu'ils soient enlevés sans danger, on doit trier les déchets de mercure ou d'amalgame dans un contenant hermétique avec des liquides qui suppriment les vapeurs de mercure — ou, à défaut, avec un fixateur radiologique.
17. On doit éviter de laisser tomber dans l'évier du mercure ou des déchets contaminés par le mercure afin de ne pas aggraver les problèmes écologiques associés au mercure.
18. Fumer immédiatement après ou durant qu'on manipule du mercure en accroît l'absorption dans l'air ambiant.
19. On doit changer régulièrement les filtres des ventilateurs qui recyclent l'air ambiant.
20. On ne doit pas utiliser d'aspirateurs dans les locaux où l'on manipule du mercure, car ils augmentent les dangers de contamination en le recyclant dans l'air ambiant.
21. On doit déterminer régulièrement le taux des vapeurs de mercure dans les salles d'opération.
22. Lorsqu'on craint une contamination par le mercure, on doit soumettre les membres du personnel à des examens des cheveux, du sang ou des urines.

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IS IT THE CARIES PROBLEM OF THE FUTURE?

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For presentation at the:
CDA National Conference on
Dental Caries Decline
February 1-2, 1985

INTRODUCTION

The question posed, "Root Caries — Is It the Caries Problem of the Future?," is certainly a relevant issue given society's current surging interest in diseases of older and middle-aged adults. Dentistry, along with many other health and service professions, has realized, and has begun to address the inadequacies of our knowledge regarding both the occurrence and treatment of diseases that affect our adult population. To date, root caries appears to be one of the few oral disease problems that occurs exclusively in adult populations. Given the general lack of data on adult oral health, the answer to the posed question, "Root Caries — Is It the Caries Problem of the Future?," cannot be directly obtained. Rather, the answer must be sought through the interpretation of rather scanty data sets on root caries prevalence as well as on equally scanty data sets regarding other oral diseases in adults.

A frustrating aspect of dealing with the posed question is that its historical counterpart, i.e. "Root Caries — Is It the Caries Problem of the Past?," can be answered directly, despite the relative scantiness of the data from time periods of the distant past.

A recent review of the literature concerning the prevalence of root caries in selected ancient populations (Banting, 1984) gives evidence that it was not only a commonly observed phenomena, but that it was more commonly observed than was coronal caries. More recent epidemiologic surveys of living primitive populations (Schamschula et al, 1972, 1974) support these observations. The average member of this contemporary primitive population was observed to have between 2-6 root caries lesions with virtu-

ally no evidence of coronal caries. Thus, both historical and contemporary evidence concurs that root caries was very likely to have been the major caries problem in the distant past.

Nevertheless, the posed question asks about the future and will require reviewing both available and "best projection" epidemiologic data on periodontal disease, primary coronal caries, and secondary coronal caries as well as root caries data. Specifically, the following tangential questions will have to be considered prior to formulating an answer to the posed question about the future:

What is the current evidence on the prevalence of root caries?

What is the current evidence on recent trends in periodontal disease in adults?

What is the current evidence and/or projected trend regarding competing caries diseases in adults, i.e. primary and secondary coronal caries?

AVANT-PROPOS

En cariologie, les racines cariées constitueront-elles le problème de demain? Cette question est certainement pertinente, compte tenu de l'immense intérêt que suscitent actuellement les maladies des gens âgés et des adultes d'âge moyen. Parallèlement à plusieurs autres professions s'intéressant à la santé et offrant des services, la médecine dentaire, se rendant compte de l'insuffisance de nos connaissances touchant la prévalence et le traitement des maladies qui affectent la population adulte, a commencé à y remédier. Jusqu'à présent, les racines cariées semblent être l'une des rares maladies buccales qui se rencontrent exclusivement chez les adultes. Étant donné le manque général de données touchant la santé buccale des adultes, on ne peut répondre directement à la question posée plus haut. Il faut plutôt chercher la réponse dans l'interprétation de données plutôt pauvres touchant la pré-

valence des racines cariées et de données tout aussi pauvres touchant les maladies buccales des adultes.

Par contre, lorsqu'on pose la même question, mais au passé, il est frustrant de constater qu'on peut y répondre spontanément malgré la relative pauvreté des données ayant trait à des périodes du passé éloigné.

Une récente revue des publications portant sur la prévalence des racines cariées dans des populations anciennes déterminées (Banting, 1984) démontre que cette maladie était non seulement souvent observée, mais qu'elle l'était plus que les couronnes cariées. Des études épidémiologiques plus récentes effectuées auprès des populations primitives actuelles (Schamschula et al, 1972 et 1974) confirment ces faits. On a découvert que les membres de ces populations présentent en moyenne de 2 à 6 lésions carieuses radiculaires et pratiquement aucun signe de caries coronaires. Les témoignages présents et passés se recoupent donc, indiquant que les racines cariées étaient très probablement un problème important dans le passé éloigné.

Toutefois, la question posée concerne l'avenir et demande qu'on révise aussi bien les données épidémiologiques dont on dispose et qui constituent les "meilleures prévisions" touchant les maladies parodontaires, les caries coronaires primaires et les caries coronaires secondaires, que les données touchant les racines cariées. Plus précisément, avant de répondre à la question initiale, il convient d'abord de répondre aux questions connexes suivantes:

Quelles sont les données actuelles touchant la prévalence des racines cariées? Quelles sont les données actuelles touchant les dernières orientations dans les maladies parodontaires chez les adultes? Quelles sont les données actuelles ou les tendances prévues touchant les principales maladies carieuses chez les adultes (i.e. les caries coronaires primaires et secondaires)?

Current Evidence on the Prevalence of Root Caries

Three recent reviews of the epidemiologic evidence on root caries (Banting, 1984; Katz, 1980; and Nyvad and Fejerskov, 1983) all present a similar descriptive picture. Based upon the 13 published epidemiologic reports that currently exist, the following broad observations can be stated:

1. most studies were on populations between the age of 20 and 60 years
2. approximately 45 per cent of persons in most of the studies exhibited root caries
3. most of the studies reported a doubling of the mean number of root caries lesions per person between the ages of 30 and 60
4. there was no conclusive evidence of an association between either plaque or coronal caries and the presence of root caries.

Several of the most recent epidemiologic studies have provided more detail about root caries occurrence than was available in the earlier reports. A recent national survey in Finland (Vehkalahti et al, 1983) on the adult population, revealed that 21.6 per cent of the men and 14.5 per cent of the women exhibited root caries. Furthermore, the authors reported that approximately 2 per cent of the teeth in men and 1 per cent of the teeth in women had been attacked by root caries. In an analysis of root caries attack rates in a U.S. population of employed adults (Katz et al, 1982) the overall Root Caries Index (RCI) was approximately 11.4 per cent, i.e. one out of every nine surfaces with recession exhibited evidence of root caries with a mean number of lesions equal to 1.7. The RCI rates were very similar for males and females. There was a bimodal distribution of the RCI in the middle-age age-groups with nearly 40 per cent showing no evidence of root caries, and another 40 per cent showing an RCI of 20 per cent or greater. This study and another study which also reported root caries attack rates as the proportion of teeth with gingival recession (Banting et al 1980) presented contradictory findings to previously published reports regarding which surfaces were most commonly affected by root caries. Both of these studies, while agreeing with previous reports that the buccal surfaces exhibited the greatest number of root caries lesions, provided evidence that in one or both arches the interproximal surface was the highest risk site if recession had already occurred. Furthermore, root caries attack rates have been shown to be different for the anterior and posterior regions of each arch. For each age group, the mandibular posterior exhibited the highest root caries attack rate

followed by the maxillary anterior region, then the maxillary posterior region, with the mandibular anterior region exhibiting the lowest attack rates. These differences in root caries attack rates by toothtype were observed despite the fact that the rate of gingival recession was remarkably similar for each toothtype.

Recent, as yet unpublished data, from an epidemiologic survey of root caries in a randomly selected population of adult dental patients (Katz and Newitter, 1985) reveal that root caries attacked 15.0 per cent of all teeth with recession. Moreover, these data also found that the mandibular posterior teeth were the most susceptible to root caries attack and that the mandibular anteriors were the least likely group of teeth to exhibit root caries. There was no difference in RCI rates between males and females and there was no discernable pattern of increasing RCI rate when these data were analyzed by decade of life from ages 20-80 years. Each decade of life exhibited an RCI rate between 11.3 per cent and 18.1 per cent with the mean number of lesions per person equal to 2.8 ranging from 0.9 in 20-29 year-olds to 5.6 in 70-79 year-olds.

The summation of this epidemiologic data on current evidence on the prevalence of root caries offers the beginnings of estimates on two prevalence rates: first, the percentage of people with root caries; and second, the attack rate for teeth with recession. The best estimate of the gross prevalence rate is that it probably falls in the range of 20-40 per cent for adults in western, industrially developed nations. The intra-oral attack rate for this disease on teeth that are at-risk, i.e. teeth that exhibit gingival recession, probably lies between 10-20 per cent for adult populations in western, industrially developed nations. While these estimated ranges represent reasonable interpretation of the existing data, they must be utilized for future projections with a great deal of caution given the few data sets upon which they are based.

Current Evidence on the Trends in Periodontal Disease

Major descriptive epidemiologic studies over the past 25 years have provided the basis both for an estimate of the actual level of periodontal disease in adults and for an analysis of the trends over time. Six major descriptive epidemiologic studies in western, industrially developed nations (Johnson et al, 1965 in the U.S.; Sheiham, 1969 in England; Kelly and Harvey, 1979 in the U.S.; Rozier et al, 1981 in North Carolina; Hugoson and Jordan, 1982 in Jonkoping, Sweden; and Markkanen et al, 1983 in Finland) confirmed traditionally held clinical

impressions that the majority of adults exhibited periodontal disease and that the severity of periodontal disease increased with increasing age. Nevertheless, careful analysis of these data sets (Douglass et al, 1983; Page, 1984) give indication that downward trends in periodontal disease levels have occurred as regards both the gross prevalence rates and in the severity of disease over this 25 year period. Of special interest in relation to the effect on the prediction of future root caries levels was the observation that there was no downward trend in periodontal disease with pocket formation observed in the U.S. national data.

In addition to naturally occurring disease levels, the literature suggests that surgical intervention in the treatment of periodontal disease may place post-surgical patients at greater risk for the development of root caries (Ravald and Hamp, 1981). The contribution of this risk factor in regard to the prevalence of root caries is not yet established. The outcome of the current debate regarding surgical versus non-surgical management of periodontal disease will have an influence.

Clearly, the prevalence of root caries and the impact that root caries may have in the future is linked to the level of periodontal disease and its sequelae of gingival recession. For while subgingival root caries may occur, the evidence to date on the epidemiologic picture of root caries is dominated, if not totally characterized, by the supra-gingival root caries data. While this is certainly based upon technological and pragmatic considerations, it may be biologically dictated as well. While future population-based epidemiologic studies will be necessary to confirm or refute the current early reading of trends in periodontal disease prevalence, it does appear that for the immediate future, there will be substantial levels of periodontal disease with gingival recession in the adult population. This would provide the necessary at-risk population for the manifestation of root caries.

Current Evidence on Coronal Caries in Adults

The data base for isolating and describing both primary and secondary coronal caries rates in adults is extremely limited. The data from the three reports that have studied these diseases within the context of the same study suggest that the ratio of secondary coronal caries: primary coronal caries is approximately 8:1 in adults with the absolute rate of secondary caries being between 15-20 per cent of all restored teeth (Hansen, 1977; Hugoson and Koch, 1979; and Goldberg et al, 1981). Clearly, recently observed changes in the primary coronal

caries rates in preteens and teenagers will exert a major influence on the prevalence rate of these two adult caries diseases in the future. Precise, or even reasonably accurate, predictions concerning these factors are virtually impossible, given the lack of research efforts on these disease rates in the past. The only safe statement is that secondary coronal caries probably has been the more common adult coronal caries problem in the recent past. Whether the observed decrease in coronal caries in preteens and teenagers will alter that observation, remains to be seen. Certainly, teenagers will enter their adult years with a greater number of coronal surfaces at-risk to dental caries. If the mechanism that led to this decrease in caries in children confers lifelong protection, then secondary caries may still dominate primary coronal caries in adults, albeit at a lower absolute level. If, on the other hand, the mechanism that led to this reduction in caries in children does not confer lifelong protection, then primary coronal caries in adults may increase in the future.

The effect of preventive therapies developed for coronal caries on the disease of root caries is virtually unmeasured in adult populations. Of the current preventive agents/regimens, fluoride seems to hold the most promise. While no clinical trials have been conducted on specific fluoride agents or regimens for the control of root caries in adults, there is evidence in the literature that this may be an effective agent. The findings of a study on root caries prevalence rates in lifelong residents of a fluoridated Canadian town vs. a non-fluoridated Canadian town revealed an approximately 50 per cent lower root caries prevalence rate in the fluoridated community (Stamm and Banting, 1980). Additionally, there is a growing body of laboratory evidence which supports the clinical interest in testing the efficacy of fluoride therapy in the prevention of root caries (Banting, 1984).

Summary of Existing Evidence

Root caries — is it the caries problem of the future? From one perspective, the answer is clearly "yes". Root caries is certainly the caries problem of the future if one considers how very recent are the rigorous and organized investigations into this disease process. The vast bulk of whatever data are available on this caries process has been reported only over the past decade. Hence, interest is currently high in discovering many types of facts about this caries process. Regardless of whether one is primarily interested in epidemiologic studies (descriptive or analytical), histopathologic studies, experimental epidemiologic studies on preventive agents and treatment techniques (including clinical and community

trials), or basic biomaterials research for the restoration of root caries, the excitement about and opportunity for fruitful research abounds. Most simply stated, the same lack of data which makes it impossible to directly answer the posed question, creates excitement about the future findings related to this caries process.

However, the crystal ball fogs a bit when one tries to ascertain whether root caries is "the" caries problem of the future, or merely "one of" the caries problems of the future. The answer to this question is dependent upon having baseline data for root caries prevalence, trend data for both primary and secondary coronal caries in adults, and predicted coronal caries data in preteens and teenagers as well as trend data for periodontal disease. As discussed earlier, we have only scant evidence in all of these arenas of inquiry.

Nevertheless, it is possible to summarize what is now known about root caries, coronal caries, and periodontal disease in adults. With due recognition of the limitations on interpreting the data in these arenas of inquiry, questions about the absolute and relative magnitude of the root caries problem in the future can be cautiously approached. First, best estimate of the attack rate for root caries is that 10-20 per cent of teeth with gingival recession are affected. Second, the best estimate of the gross prevalence rate is that 20-40 per cent of adults are affected. Third, the best estimate of the primary coronal caries rate in adults is that 1-2 per cent of teeth are affected. Fourth, the best estimate of the secondary coronal caries rates in adults is that 15-16 per cent of teeth with restorations are affected. Fifth, the antecedent condition of gingival recession would seem to be on the increase in absolute numbers even if the rate is constant due to the increased retention of teeth over the later years of life. Despite the obvious fact that certain "wild cards" still exist in our predictive deck (e.g. future caries levels in preteens and teenagers and the nature of the protection already conferred to existing preteens and teenagers), it seems reasonable to conclude that root caries lesions will increase in absolute numbers even if the current rate of attack remains constant. Given that the current prevalence counts of lesions per person range between 1-3 lesions for ages 30-60 years, an increase in the absolute number of root caries lesions may never overwhelm the capability of dentists to cope with the restorative challenge as was the case with coronal caries in children. Current evidence would indicate that it takes a decade to achieve the same increment in mean number of root caries lesions that can be observed for coronal caries in a single year for teenagers.

When one considers the posed question from a comparative standpoint as it regards competing caries problems in adults, it may well be that root caries may become more dominant. As secondary coronal caries becomes a rarer event in future adult generations because of the fewer restorations required by today's preteens and teenagers, root caries may possibly become the more common adult dental caries problem again. However, in the most immediate future, the large number of existing restorations in young adults suggests that secondary coronal caries which currently occurs slightly less often than does root caries (approximately 15 per cent of teeth with fillings vs. 15 per cent of teeth with recession) will retain its near equal status with root caries. As for primary coronal caries in adults, even if one predicted a threefold increase because of increased surfaces at-risk, the rate of attack would still be only half of the current rates for secondary coronal caries and root caries.

While it is intriguing to manipulate existing data on dental caries to predict whether this-or-whether-that will occur, the uncertainty inherent in such prognostications is a recognized occupational hazard for all "whether" men.

Future Research: Directions and Techniques

The epidemiologic study of root caries in adults will force dental investigators to adopt, for the first time, epidemiologic research techniques that have been commonplace in the study of many medical health problems. The extraordinarily high prevalence and incidence rates for coronal caries in children was a great luxury for dental epidemiologists. Not only were the disease rates high, but the "diseased" collected very conveniently in holding pens, called schools. Access to large numbers of individuals for study was relatively easily accomplished. Not so as regards either the occurrence rates of root caries nor the access to populations for study. As mentioned earlier, root caries appears to increase per decade at the same level that coronal caries increased per year in preteens. Translation: a three year study for a preventive agent for coronal caries in children would require a 30 year study period in adults for root caries, given similar study parameters — if you could access that size population in one locale.

Despite the current national study on adult oral health (including root caries prevalence) that is underway in the United States, it seems unavoidable that we will only gain our descriptive picture of the prevalence of root caries via a carefully pieced-together series of convenience sample studies. In

fact, the NIDR effort only will collect data on employed working-age adults and older adults in day-activity centres. The ability to generalize from the findings on these convenience samples will be far more limited than was the case for school-based studies.

Innovative techniques for the collection of descriptive epidemiologic data will be required to overcome the fact that adults simply do not collect in any one place that is comparable to the school situation for children. Neither sheer numbers, cross-sectional representativeness, nor administrative access and acquiescence will prove as attainable for adult populations. Hence, regardless of whether one is trying to create incentives for employers, workers and/or residents of housing facilities, innovation will be the key to successful data collection.

Several of my colleagues and I have been developing a technique to allow us to establish an oral health epidemiologic monitoring system for adult dental patients. Admittedly, this is just one of those convenience samples to which I previously made reference. Certainly the oral health status of adult dental patients is a constituency of concern to the dental profession. Nevertheless, it must be borne in mind that data from this, or any convenience sample, provides but one piece of the epidemiologic puzzle. This descriptive epidemiologic data collection technique relies upon the cooperative effort between university-based dental researchers and community-based dental practitioners to produce data that neither could accomplish separately. In brief one week data collection periods, randomly chosen practitioners diagnose oral health problems in all the adult patients seen during that week. The technique is dependent upon high practitioner participation rates, complete ascertainment of all patients, simple and brief data collection forms, and a set of guidelines and definitions shared by all participating dentists.

Similarly, answers to important clinical questions regarding the efficacy of techniques and/or agents for the prevention of root caries must be sought, using radically different approaches than required for coronal caries trials in children. Strong consideration must be given to the multi-centre trial technique which is so commonly used in medical epidemiology. Multi-centre trials are major administrative undertakings which require substantial funding. The need for these approaches is dictated by the prevalence levels of the disease of root caries and the administrative limitations of any one group of researchers to gain access to an adequate number of subjects to achieve specified research design parameters. For

answers to questions about risk factors and etiology, the well utilized medical epidemiologic design, the case control study, will become attractive because of the number of years it apparently takes for this disease to appear on a clinically detectable level, following exposure to the risk factor and/or etiologic agent.

In addition to the need for novel research approaches, there do remain several necessary, albeit mundane, issues to be resolved related to the study of root caries. First, the research community must develop a definition of root caries that suffices for descriptive, analytical and experimental epidemiologic studies, including conventions for the application of that definition. Then, the researchers must establish standards for inter- and intra-examiner reliability in the measurement of this disease. Third, there must be a consensus developed on the most informative way or ways to report this disease entity. Fourth, inquiry should be made into the best diagnostic instruments for the detection of root caries, i.e. instruments that allow a maximum sensitivity and specificity.

Root caries — is it the caries problem of the future? Yes, because of our lack of knowledge about this caries disease. Yes, because it affects that segment of the population for which the dental profession has growing concern. And finally, yes, because it will force dental epidemiology to venture into a variety of standard epidemiologic research techniques as it seeks answers to a common, but less than ubiquitous, disease — root caries.

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It is brought to your attention that meetings of the Board of Governors are open to all members of the Association.

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Announcements

JULY/JUILLET

July 3-5: Bermuda Dental Association 1985 Convention. Guest speakers include Dr. Ron Jordan from the University of Western Ontario. Contact: Dr. Robert Gibbons, Erin, Paget 6-20, Bermuda, 809-296-4477.

July 8-9: National Conference on the Delivery of Periodontal Health Care, Hillenbrand Auditorium, American Dental Association Building, 211 E. Chicago Ave., Chicago, Ill. USA. Contact: American Academy of Periodontology, Room 924, 211 E. Chicago Ave., Chicago, Ill. 60611.

AUGUST/AOÛT

August 1-21: American Dental Professionals for Israel's annual Summer Program in Israel '85'' for dental students. Contact: American Dental Professionals for Israel, 212-486-4266, or write 515 Park Ave., New York, New York, 10022.

August 4-9: Dental Volunteers for Israel, International Symposium, Jerusalem, Israel. Topic: Today's Prevention for Tomorrow's Dentistry. Contact: Kenness International, 1 Park Ave., New York, New York. 10016, 212-684-2010 or Dr. M. Florence, 416-925-8933.

SEPTEMBER/SEPTEMBRE

September 11-14: Annual meeting of the American Academy of Periodontology, San Francisco Hilton and Tower, San Francisco California. Contact: The American Academy of Periodontology, 211 E. Chicago Ave., Room 924, Chicago, Ill. 60611.

September 12-14: 37th Annual New Orleans Dental Conference, New Orleans

Hilton and Towers, New Orleans Louisiana. Conference theme is "The Magic of Fine Dentistry." Contact: The Conference Office, 3101 West Esplanade Avenue, Suite 119, Metairie, LA. 7001, 504-834-6449 for information.

September 16-December 12: UCLA School of Dentistry refresher program. UCLA Extension Downtown Centre, Los Angeles, California. Contact: Continuing Education in Dentistry, UCLA Extension, 10995 Le Conte Avenue, Room 614, Los Angeles, California, 90024, 213-825-9187.

September 18-21: 4th International Dental Congress on Modern Pain Control. Bologna, Italy, Pallazzo dei Congressi. Contact: Masson Italia Congressi, Via Baldissera, 4-20129, Milan, Italy.

September 19-22: International Association for Orthodontics invites interested GPs and Paedodontists to come to Seattle, Sheraton Hotel. Speakers from Baylor, Emory and Washington Universities will cover many topics, including arch development, prescription bonding, vertical corrector, intra-oral orthodontic photography, and the use of extra oral force. Participation clinics in TMJ and functional appliances, a program for auxiliaries in orthodontics and table clinics will be featured. Contact: International Association for Orthodontics, 211 East Chicago Ave., #915, Chicago, Ill. 60611 USA.

September 20-27: Annual meeting of the Canadian Society of Forensic Science jointly with the Society of Forensic Toxicologists and the American Society of Questioned Document Examiners, Hyatt Regency Hotel, Montreal, Quebec. Contact: Executive Secretary, Canadian Society of Forensic Science, 2660 Southvale Cres., Suite 215, Ottawa, Ont., K1B 4W5, 613-731-2096.

September 21-27: 1985 Congress of the Federation Dentaire Internationale is being held in Belgrade, Yugoslavia.

September 26-28: Canadian Academy of Prosthodontics annual meeting at the Westin Hotel, Ottawa, Ont. Contact: Dr. B.M. Jackson, 22 Water St. S. Kitchener, Ont. N2G 4K4.

September 26-28: The Northeast Canadian/American Health Council Sixth Biennial Conference, Hartford Marriot Hotel, Farmington Connecticut. Topic: "Navigating Troubled Waters: An Opportunity for Innovation in Health Care." Contact: Mr. Wayne L. Carew, Sixth Biennial Conference, Public Relations Chairman, (Canada), Executive Director, Prince County Hospital, 259 Beattie Ave., Summerside, PEI, C1N 2A9, phone 902-436-9131.

September 27-29: Canadian Academy of Endodontics annual meeting, Ottawa Ontario, Four Seasons Hotel, Contact: Dr. Lorne Chapnick, 2200 Yonge St., Suite 1009, Toronto, Ont. M4S 2C6.

September 27-29: Fifth International Dental Electrosurgery Conference-Workshop, Grand Island Holiday Inn, Niagara Falls, New York. Contact: Dr. M.J. Oringer, Academy Executive Secretary, P.O. Box 205, Thousand Island Park, New York, 315-482-9592.

September 29-October 1: Annual Meeting of the Association of Prosthodontists of Canada, Four Seasons Hotel, Ottawa, Ontario. Contact: Dr. Donald Kramer, 506-700 Bay Street, Toronto, Ontario, M5G 1E2.

September 29-October 2: Canadian Dental Association national convention. Ottawa, Ontario, at Canada's Capital Congress Centre. Contact: Canadian Dental Association, 1815 Alta Vista Dr., Ottawa, Ont. K1G 3Y6.

OCTOBER/OCTOBRE

October: Golf at Gleneagles, Atlantic Dental Seminars, Gleneagles Scotland, "Comprehensive Adult Dentistry". Contact: Course Director (North America) 1545 Birmingham St., Halifax, N.S., B3J 2J6.

October 8-12: Austrian Dental Congress, Graz, Styria, Austria. Contact: Styrian Dental Surgeons and Dentists Association, Univ.-Zahnklinik, A-8036, Graz -LKH, Austria.

October 13-18: 6th Congress of the International Society for Laser Surgery and Medicine. Organized by the Israel Society for Laser Surgery and Medicine. Jerusalem, Israel. Contact: DIT Travel/Convention Division, 1183 Finch Avenue West, Suite 203, Downsview, Ontario M3J 2G2, Attention: Rifka Boruchowicz, Convention Secretariat, phone 416-663-9100/07.

October 30: The first national and international scientific encounter of the dental schools, during the XVIII National and International Congress of the Mexican Dental Association. Contact: Admgen Ezequiel, Montes 92, Mexico, D.F., 06030 Mexico 915-566-61-33.

NOVEMBER/NOVEMBRE

November 2-5: 126th Annual Session of the American Dental Association, San Francisco California. Contact: The American Dental Association, 211 East Chicago Ave., Chicago Ill., 60611 U.S.A.

November 7-9: First International Beijing (Peking) Symposium in Dentistry and First International Dental Trade

Show. Inaugural theme will be dental materials and their clinical use. Contact: Quintessence Publishing Co. Inc., 8 S. Michigan Ave., Suite 2301, Chicago ILL. 60603, U.S.A. Telephone (800) 621-0387.

November 18-21: American Dental Association, Foods Nutrition and Dental Health Program in co-operation with the University of Texas, Health Science Centre at San Antonio, Dental School, announces a scientific **consensus conference on Methods for Assessment of the Cariogenic Potential of Foods**, University of Texas Health Sciences Centre, San Antonio, Texas. Contact: Dr. Dominick DePaola, Chairman, 7703 Floyd Curl Drive, San Antonio, Texas, 78284, 512-691-6601.

November 22-23: The Professional Development Committee of the Ontario Dental Association will present a symposium on Periodontics in Toronto. Contact: Dr. Jeffrey Goodman, Director of Professional Development, 416-922-3900.

November 28: 1985 Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 30: American Academy of Dental Electrosurgery annual meeting. New York Hilton Hotel. Contact: American Academy of Dental Electrosurgery, 57 West 57th St., Suite 1001, New York, New York, 10019, 212-755-6630.

1986+

January 30-February 2, 1986: Health-Com '86, Las Vegas, Nevada, Las Vegas

Convention Centre. Highlights computer, telecommunications and information systems specifically for the healthcare industry. Contact: Lin Fish/Pete Soraparu, Fleishman Communications Inc. 312-397-7744.

April 7-12 1986: 23rd International Dental Show and German Dentists' conference in Cologne, Germany. Contact: Messe-und Ausstellungs-Ges. m.b.h. Koln, Messeplatz, Postfach 210760, D-5000 Koln 21 (Deutz) West Germany.

June 26-29, 1986: 10th International Symposium on Dental Hygiene. Oslo, Norway. Scandinavia Hotel. Abstracts must be submitted by **November 1, 1985**, to: The Scientific Committee, 10th International Symposium on Dental Hygiene, P.O. Box 438, 1301 Sandvika, Norway. For more information contact either Inger-Lise Bryhni or Elisabeth Olsen Kolbjornsen at the above address.

July 1, 1986: Applications are being accepted for the **Postdoctoral program, Dental Diagnostic Science at the University of Texas**, Health Science Center at San Antonio for the class beginning **July 1, 1986**. Address inquiries to: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Centre at San Antonio, 7703 Floyd Curl Dr., San Antonio TX. 78284.

September 9-12, 1986: International Association of Oral Pathologists in association with the British Society for Oral Pathology - Biennial Congress, Edinburgh, Scotland. Contact: Dr. J.C. Southma, Department of Oral Medicine and Oral Pathology, University of Edinburgh, Chambers St., Edinburgh, Scotland, EH1 1JA.

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ONTARIO—Associate and Periodontist wanted in established group practice in Northern Ontario. Please reply to CDA Box no. 2276.

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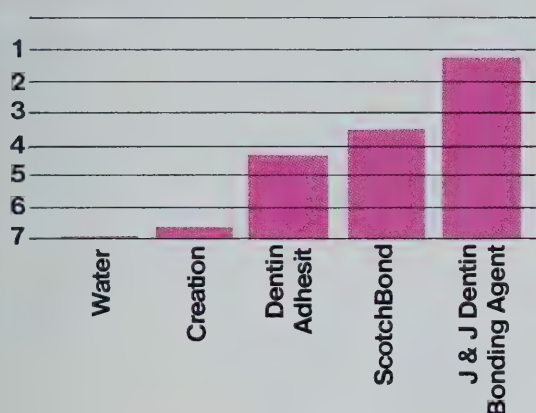
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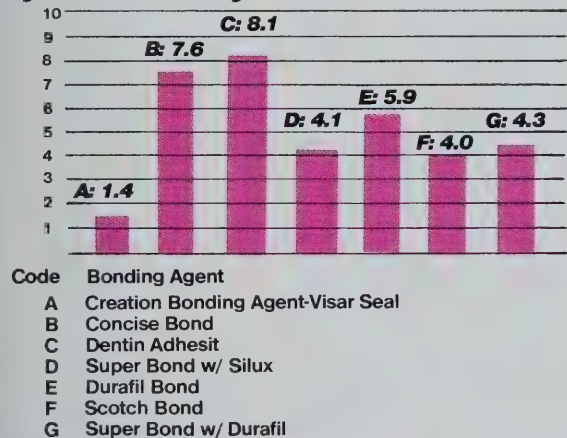
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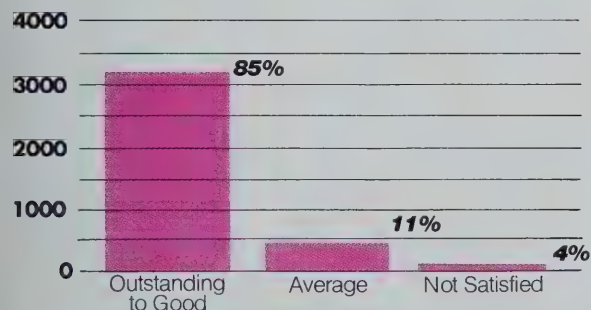
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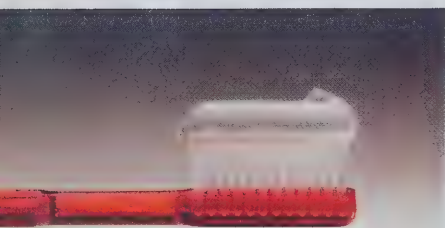
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1. Tests conducted on an Orion Model 701A Digital pH Meter

2. North Carolina Dental Gazette, May/June 1984
Duane F. Tayler, Robert N. Konishi, Karl F. Leinfelder.

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References: 1. Ostrom, C.A. et al., J Dent Res, 56(3):212-221, 1977. 2. Arends, J., ten Cate, J.M., J Cryst Gro, 53:135-147, 1981. 3. Silverstone, L.M., Caries Res, 11 (Suppl. 1):59-84, 1977. 4. Data on file at Procter & Gamble, Inc. 5. Mobley, M.J., J Dent Res, 60(12):1943-1948, 1981. For further information, please contact Crest Professional Services, P.O. Box 355, Station A, Toronto, Ontario M5W 1C5

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FULFILLMENT

Some months ago the Editor of the Journal mentioned it might be an effective gesture if the President of CDA would consider writing an editorial regarding the upcoming CDA National Convention being held in Ottawa, September 29 through to October 2nd. I indicated that I

T*wrote such an editorial back in 1978 when I was then the Chairman of the 1978 CDA Convention held in Winnipeg. Together we pulled that 1978 editorial from the files and decided that what was meaningful then is just as meaningful today. The following is an adaption of '78. . .*

here is an ancient parable that tells of three water pitchers, similar in all respects except for their purpose, goals and fulfillment.

The Convention is one of the vehicles that helps to give the dentist the fulfillment he requires so he may better serve his patients in this rapidly changing world. Since the founding meeting of the Canadian Dental Association held in Toronto in September 1902, dentists have recognized the requirement for national unity and for organized scientific advancement. In all credit to our forebears, 344 dentists, or 19 per cent of the total 1902 dental population, travelled from as far away as the North West Territories for the privilege and necessity of attending a Convention. During the intervening 83 years of Conventions, no doubt their organized formats have varied and changed as much as the locales wherein the Conventions have been held, but unquestionably the framework of ideals and goals has been constant — advancement and fulfillment within national unity. To this end the 1985 Ottawa Convention has been preparing for the last two years.

In 1902 Dr. Eudore Dubeau, Secretary of the Quebec Dental Association, wrote to every Canadian dentist an invitation to attend the founding meeting. . .

"every dentist who can rise above mere local or provincial affairs in our country, and has thought about the immense advantages to be gained by the nationalization of the dental profession, should unhesitatingly give the idea his support"

Should the year 1985 be any different? The National Convention is the annual unification of the dental politic in Canada. As Dr. Dubeau's plea of rising above mere local or provincial affairs was valid in '02 so be it in '85.

If being a "continuous student" is truly one of the "marks" of a professional, then this year's Scientific Program affords an abundance of opportunity to serve continuing education obligations. The variety and quality of both the Pre-Convention Participation Courses and the Convention's Scientific Sessions are such that no dentist need leave "unfilled"; there are high-calibre selections to satisfy all requirements.

If dental knowledge itself has expanded, so too has the role of dental equipment and consumable supplies. The National Convention again plays an important role in bringing to the dentist the latest technical advancements. The "trade show", with its commercial sponsorship, gives the dental community the opportunity of surveying and deliberating what technical advancement best assists in serving particular patient requirements. With the great financial investments and technical adjuncts that are required today, the commercial exhibits truly fulfill a role.

No convention — 1902, down through the years, and today in 1985 — would be complete without its social involvements. Man, by his nature, is a social creature and the recognition of past acquaintances and classmates, the meeting of new friends, the opportunity of informal conversations, are other aspects of Convention importance and play a role in fulfillment.

Inevitably, each dentist has to determine his own involvement and vehicle of attainment of fulfillment. He alone decides his role: Is his dental life empty, unrewarding and "hanging on a hook", really not attaining his true capacity? Is one's career, once filled with potential and purpose, virtually unchanged in the stream of life? Or is the dentist to choose a life of gathering knowledge and dispensing care . . . a process of being filled and emptied . . . a returning to the well of life? Fulfillment is Life in all its meaning. The National Convention can aid that fulfillment.

*Dr. Ralph Crawford
President, CDA*

SALES TAX TROUBLE FOR DENTISTS AND CONSUMER

On July 1, 1985, the federal government reinstated sales tax on surgical and dental instruments, x-ray apparatus and x-ray films.

The tax on these items is 10 per cent and while hospitals will continue to be exempt, dental practitioners working in a non-hospital environment and making a purchase of these items will be required to pay the tax.

Dr. Robert Hicks, CDA-Past President and Chairman of the Taxation Committee told the Journal that the extra cost will inevitably be passed on to the health care consumer.

"There was no advance warning to the profession that this sales tax was being considered by the Department of Finance as a budget item," said Dr. Hicks. "The CDA's Taxation Committee intends to keep on top of the situation."

The Taxation Committee has prepared a letter to the Department of Finance expressing concern over the tax, and concern that the additional cost being paid by the dentist for instruments and x-ray equipment will be passed on to the consumer of dental care.

"The letter from the Taxation Committee will state our reasons for considering this sales tax an unjustifiable one and will express concern to the Finance Department on behalf of the dental profession," said Dr. Hicks.

BACK CARE PROGRAM DEVELOPED FOR HEALTH CARE PERSONNEL

Statistics indicate that eight of every 10 Canadians suffer from back pain at some time during their adult lives.

Health care personnel are in a particularly high risk category, and dentists are all too familiar with back pain problems.

An extensive and effective staff education program developed at the Queen Elizabeth Hospital in Toronto, is now being made

available to health care personnel across the country.

Because of a disconcerting increase in back injuries sustained by workers in that long-term care facility, the hospital's education committee began to teach back care to the nursing staff.

The effectiveness appears to be substantiated in back injury statistics recorded at that hospital. In 1980, 24 back injuries were reported, chiefly because of poor body mechanics, and resulted in lost employee time. The figure declined to 21 the following year, and to 12 in 1982. A report in the spring of 1983 showed no such injuries to that date.

'Back Pack' program

The "Back Pack" program, based on the Queen Elizabeth Hospital's education program, is available to all health care workers and professionals on a rental or purchase basis. It is a four-part program. The basic portion trains staff to develop and practise good back care. The core group program provides a follow-up to back care training. The remedial program introduces remedial measures for those who are suffering from back injuries and the back awareness program promotes awareness of the need to protect the back from injury.

The "Back Pack" includes a Leader's Manual and two audio-visual programs.

Details of the program will be provided by: "The Back Pack", c/o City Films, 542 Gordon Baker Rd., Willowdale, Ontario. M2H 3B4

62.2 per cent of dentists

A survey of Toronto area dentists undertaken about two years ago indicated 62.2 per cent had, or were, experiencing back pain. A concurrent survey indicated that almost exactly the same percentage of hygienists had at some time, or still were, suffering from back pain.

In the article "Back Problems Among Dentists", published in this Journal (JCDA: Vol. 49, No. 4, 1983) the author, Shirley Bassett, Dip. Dent Hyg., BScD, reflected the concern that very little reduction in the incidence of back pain had been noted over the previous 15 years, in spite of major changes in the practice of dentistry over that period,

such as sit down, four-handed dentistry and an increase in the frequency of exercise.

The author discussed factors believed to contribute to back problems in the practice of dentistry, and some suggestions on how to alleviate the problems.

Reprints of this article are available, for a small charge, from the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ont., K1G 3Y6.

NOVA SCOTIA ASSOCIATION LAUNCHES DENTAL MAGAZINE

A long period of careful planning has resulted in the first edition of "The Nova Scotia Dentist", a dental news magazine which will be circulated through all four Atlantic provinces.

Volume One, Number One, the June-July edition, rolled off the presses in mid-June.

Content of the Magazine, which will be published every two months, will be news and articles of interest to the Maritime dental community. There will be no clinical or scientific content, according to D.V. (Don) Pamenter, Executive Director of the Nova Scotia Dental Association (NSDA), who is serving as editor of the new publication.

The NSDA's Management Committee is serving as the publication's editorial board.

It is not intended to compete with any other dental publication, particularly in Atlantic Canada, and the other provincial dental associations in the Maritimes had no objections to having "our publication cross their borders," Mr. Pamenter told this Journal.

He believes it likely that in the coming months, the presence of the new magazine will generate articles and news from Newfoundland, Prince Edward Island and New Brunswick.

He looks forward to some controversial and thought-provoking editorial commentary. "The members and readership-at-large will be encouraged to participate."

Mr. Pamenter and his colleagues can foresee the possibility of the publication becoming in nature, if not in name, the "Atlantic Provinces Dentist."

Eventually, as the publication develops wider interest, an editor and official editorial board will be named, he said.

DR. ERNEST R. AMBROSE RESIGNS AS SASK. DEAN

Dr. Ernest R. Ambrose, Dean of the Faculty of Dentistry, University of Saskatchewan, since 1977, has resigned from the office, effective December 31, next.

He was first appointed Dean in 1977, and accepted a second term in 1982.

Dr. Ambrose told the Journal that he began to realize that "time and energy were passing" and he basically wished, "before too far down the road, to return to areas of considerable personal interest — teaching and research — particularly in the area of restorative dentistry."

He said he would also like to develop, at the University of Saskatchewan, testing capacities for new dental materials in a laboratory, and a means to assess materials in dental trials.

"I was active in those areas in the 1960s and early 1970s and would like to return to them," he said.

Dr. Ambrose said he plans to take some time, beginning in January, 1986, to visit centres where restorative research is being conducted. He said he will take leave from his administrative duties — "not a full sabbatical — just a half-way sort of leave."

He also looks forward to devoting time to one of his major interests — a voluntary self-assessment continuing education program for dental practitioners in Canada.

Dr. Ambrose presented the proposal at the annual meeting of the National Dental Examining Board of Canada late last year and the matter is now being examined by the CDA, the ACFD, CFDE, and provincial licensing authorities, in addition to the NDEB.

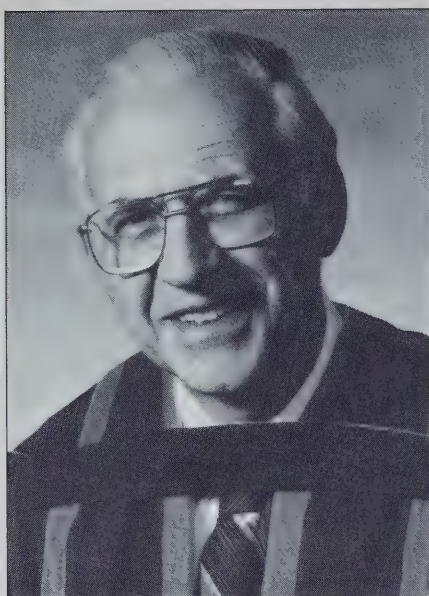
Dean at McGill

Dr. Ambrose, who was born in Montréal, graduated from McGill University in 1950 with a DDS. He continued to be associated with his Alma Mater as a part-time teacher, while conducting a private practice, from 1950 to 1957. In 1958, he became a full time instructor (Assistant Professor) and Chairman of the Department of Operative Dentistry. In 1966, he was named Associate Professor and Director of the Division of Restorative Dentistry, and in 1971, became Professor of Clinical Dentistry.

He was named Dean of McGill's Faculty of Dentistry in 1970, and accepted a second term in that office in 1975.

To Saskatchewan in 1977

In 1977, Dr. Ambrose left the slopes of Mount Royal in favor of the prairie country, to become Dean of the College of Dentistry at the University of Saskatchewan. He



*Ernest R. Ambrose,
DDS, FICD, FACD, FRCD(C)*

accepted his second term as Dean in 1982, and would normally have served until 1987.

In other areas, he had been, while in Montréal, a member of the consulting staff of the Montréal General Hospital and the Montréal Children's Hospital. He had also served as a consultant at the Montréal Jewish General Hospital. In Saskatoon, Dr. Ambrose has been serving at the University Hospital.

He has been active in several capacities with the Canadian Dental Association. He was a member of the Council on Education, 1973-78; representative of the Council on Education to the National Dental Examining Board, 1974-78, and the Dental Aptitude Test Committee from 1974 to 1980.

Dr. Ambrose was Clinical Examiner with the National Dental Examining Board in 1978 and from that date until 1986 continues to serve the same body as Chairman of the Committee of Written Examiners. He was Consultant in Restorative Dentistry to the Royal Canadian Dental Corps from 1973-77.

Widely published

Dr. Ambrose's articles have been published in a wide range of dental publications in Canada and abroad, largely in the field of restorative dentistry. Several of these have been published in this Journal.

He is a member of many national and international dental societies, including the Fédération Dentaire Internationale, the Pierre Fauchard Academy, the Academy of Operative Dentistry, the American Academy of Gold Foil Operators, the American Association of Dental Schools, the Academy of General Dentistry and the American Society of Dentistry for Children.

He is a Charter Member of the Canadian Academy of Restorative Dentistry.

He has been a member and chairman of a number of dental survey groups and has presented many workshop and refresher courses at various points in the United States and Canada.

DEAN GEORGE BEAGRIE HONORED BY MCGILL U.

Dr. George Simpson Beagrie, Dean of the Faculty of Dentistry, University of British Columbia, received the degree, Doctor of Science, honoris causa, at the McGill University Health Sciences Convocation on May 30, in Montréal.

In his citation, Dean Kenneth C. Bentley of McGill's Faculty of Dentistry noted that "it is only fitting that this University, with its Scottish traditions, should honor this former Scot, who, having left his homeland to come to this country, has contributed so much to it."

In addition to his duties as Dean at UBC, Dr. Beagrie is presently serving as a consultant in Dental Education to the World Health Organization, Chairman of the Commission on Dental Education and Practice of the Fédération Dentaire Internationale, and Chairman of the World Health Organization's Expert Panel for Oral Health Community Care Model Development.

A native of Peterhead, Aberdeenshire, Scotland, Dr. Beagrie qualified in dentistry in 1947, at the Edinburgh Dental Hospital and School and the Royal College of Surgeons of Edinburgh. He then pursued post-graduate studies at the Universities of Michigan and Oslo, Norway. The acceptance of his thesis: "Patterns of Mitoses in the Gingival Epithelium of Mice", earned him his DDS degree in 1966.

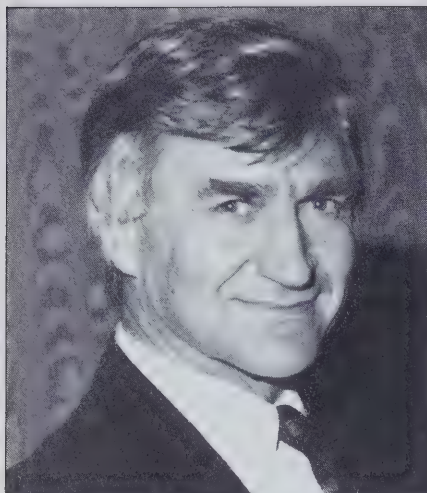
Dr. Beagrie's teaching career began in the School of Dentistry of the University of Edinburgh and he subsequently became Professor and Chairman of Restorative Dentistry at that eminent institution.

To Canada in 1968

Canada began to enjoy the benefits of his scholarship and talents in 1968, when he accepted the position of Professor and Chairman of the Division of Clinical Sciences, Faculty of Dentistry, University of Toronto. He remained in Toronto about 10 years, becoming Chairman of the Graduate Department of Dentistry and Director of the Division of Postgraduate Dental Education.

He accepted an invitation from Western Canada in 1978, when he became Professor of Oral Medicine and Dean of the Faculty of Dentistry at the University of British Columbia.

Dr. Beagrie has made a multitude of sig-



George S. Beagrie, DDS, DSc,
FDSRCS, FRCD(C), FACD, FICD.

nificant contributions in dental education and research, both on a national and international level. He has served the Medical Research Council of Canada as a member of the Dental Sciences Committee, as Scientific Officer for the Grants Committee for Dental Sciences, and also, as Director of the Dental Training Grant Program.

He has been President of the Royal College of Dentists of Canada and the International Association for Dental Research. He has also been Chairman of the Evaluation Committee, National Caries Program, National Institute of Dental Research, Bethesda, Maryland.

His other honors include Fellowships in the International College of Dentists, the American College of Dentists and in Dental Surgery of the Royal College of Surgeons of England.

NEW DENTAL MANUFACTURERS ORGANIZATION FORMED

The Dental Gold Institute of Canada was formed recently and held its inaugural meeting at the Ontario Dental Association Convention in Toronto.

The Institute, an organization of Canadian manufacturers and distributors of precious metal alloys, was created to promote the use of gold as a dental restorative material.

The Dental Gold Institute of Canada charter member companies are: Degussa Canada Ltd.; J.F. Jelenko Company; Swiss NF Metals Inc., Williams Gold Refining Co. of Canada Ltd., and International Gold Corporation.

The Institute's role will be to promote the

benefits of using gold in dental restorations and to correct any misapprehensions the dental profession and the public have about the economics of gold in dentistry.

Acting on a consultant basis to the Institute is Dr. Louis Calisti, a former Dean of Tufts University, School of Dental Medicine and currently lecturing at Harvard Dental School. Dr. Calisti will be acting as liaison between the Institute and the dental community. The Institute is also currently cataloguing pertinent articles and monographs on gold in dentistry and is compiling research results on the application of both gold and base metals in restorations. It will act as a resource in the dental community and the public at large.

Membership in the Institute is open to all manufacturers and distributors of dental gold alloys.



LEFT TO RIGHT — Dr. Louis J.P. Calisti (consultant), Brian Bonneville (Williams Gold), Arthur M. Tasker (International Gold), George Wolfe (Jelenko), Karl Kemprich (Swiss NF) and John Dale (Degussa) (Chairman).

INVESTING IN RSP's

There is not a more popular tax shelter available to Canadians than Registered Retirement Savings Plans. The annual contributions, within the limits of the Tax Act, accumulate together with income and interest sheltered from taxation. The total investment does not normally attract tax until it is withdrawn from the plan.

One of the facts seldom realized by most investors is that on the income earned by the *net* RSP contributions, tax is eliminated. The net contribution is the amount that would be available for investment outside the RSP after you take into consideration the total contribution, minus the tax deduction or refund you would receive for making that deposit.

Put simply, the Government invests part of your contribution in the RSP on your behalf. How? If we take the example of an investor with the marginal tax rate of 50%, making a contribution to a RSP of \$5,500, the actual net investment is \$2,750. This is simply that if you had not made the contribution to the RSP, you would have paid \$2,750 in income tax on that money.

Therefore, when you make that contribution this year, deposit the maximum and let the Federal Government contribute half.

Why not make your deposits to the CDA RSP. It offers a full range of investment options, including a Guaranteed Fund providing fixed term deposits at competitive interest rates, without fee.

For more information call the Director of Retirement Services at CDSPI at the following toll-free numbers:

1-800-268-5418 Western Canada,
Atlantic Canada,
Ontario Area
Code 807

1-800-268-3411 Québec and Ontario,
except Area Code 807
497-7117 Metro Toronto

HOTEL RATES IN BELGRADE REDUCED FOR FDI CONGRESS

What will be a welcome item of news for those planning to attend the 73rd Annual World Dental Congress, FDI, from September 21 to 27, has recently been transmitted to this Journal.

All hotels in Belgrade have agreed to reduce their room rates by 8 per cent during the Congress. They have been reduced to the 1984 level for this period.

The agreement, reported Dr. Jan Erik Ahlberg, Executive Director of the FDI, came about after representations from the FDI about the continuing strength of the U.S. dollar.

DR. SERGE VANRY HEADS BRITISH COLUMBIA COLLEGE

Dr. Serge Vanry, a GP in a group dental practice in Vancouver, took office as President of the College of Dental Surgeons of British Columbia on July 15.

His election by acclamation had been confirmed at the annual meeting in May.

Other officers who will serve in 1985-86, are: Dr. Perry Trester of Vancouver, as a Vice-President, and Dr. Ron Smith of Duncan, B.C. as the other Vice-President. Dr. Smith was the former Treasurer and is succeeded in this post by Dr. Arnold Steinbart of Prince George.

A Manitoba graduate

Dr. Vanry is a 1966 graduate of the Faculty of Dentistry, University of Manitoba.

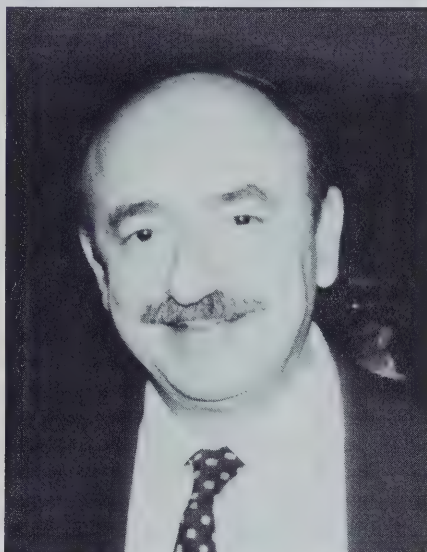
The fully-bilingual President is a member of the Board of Governors of the Canadian Dental Association, and has been a Vice-President of the B.C. College for the past three years.

His major objective as the new College President is to establish a new dental hygiene program in British Columbia.

The only dental hygiene program avail-

able in the province, at the University of British Columbia, was cancelled in June. The cancellation is believed to be as a result of cost-cutting measures by the University.

The College feels it will be possible to develop a new course at one of B.C.'s community colleges. Dr. Vanry believes the College should be in the forefront to facilitate the development of the new program.



Dr. Serge Vanry



This is a gathering of the four newly-elected table officers of the B.C. College. From left to right, they are: Dr. Arnold Steinbart of Prince George, Treasurer; Dr. Ron Smith of Duncan, Vice-President; Dr. Serge Vanry of Vancouver, President, and Dr. Perry Trester of Vancouver, Vice-President.

ADA BOARD CONSIDERS DISC IDENTIFICATION PROPOSAL

The American Dental Association's Board of Trustees is reacting to an "overwhelming" interest in developing its own microdisc identification system.

Several of these systems are already on the market in the United States and the ADA Council on Dental Practice has prepared a report on them. Such systems provide permanent identification in the form of tiny information discs bonded to a molar with clear composite resin.

Since a story on the subject appeared in "ADA News" last October, entitled "Dentists help prevent abduction of children", the ADA has received hundreds of enquiries from dentists, police officials and school authorities, wanting further information.

The ADA proposal would result in a standardized format for the microdiscs and establish a protocol for placement. The program would also provide information on how to conduct child information days — office days devoted to installing the discs and coordinating them as a community activity.

Also, the proposal calls for placement on the microdisc of a unique patient identification number that would be assigned to the treating dentist, and the creation of a telephone hot line that would provide police, dentists, and other medical personnel with further patient information in connection with the numbers.

Dr. French Moore Jr., chairman of the ADA Council on Dental Practice has noted that "as the dental health of the nation continues to improve, people are becoming less likely to have fillings and other distinguishable marks which serve as a basis for identification through dental records. The practising dentist would play a major role in publicizing and distributing an ADA-standardized microdisc identification system."

The microdiscs, Dr. Moore said, require no anaesthesia, cause no discomfort and are relatively inexpensive to place.

The ADA Board of Trustees gave the matter high priority on its summer meeting agenda.

LLOYD BOWEN HONOURED BY HEALTH LEAGUE

The Health League of Canada recently presented an award to Lloyd Bowen, the former Fluoridation Officer of the Canadian Dental Association.

Mr. Bowen was presented with the 1985 Health League Award for his outstanding contribution to public education and awareness of fluoridation. He joined the Health League in 1959 as a volunteer and soon after became Executive Secretary of the

League's Fluoridation Committee. He served in that capacity for 7¼ years, spearheading the campaign that achieved water fluoridation for metropolitan Toronto.

The award was presented to Mr. Bowen by Dr. Ralph Crawford, CDA's President, who was also a keynote speaker at the reception honouring Mr. Bowen.

Mr. Bowen, who officially retired as CDA's Fluoridation Officer in April 1984, has received awards for his contributions to the cause of fluoridation from the American Dental Association, The Canadian Dental Association, the Chief Dental Office of the U.S. Public Health Service and the Ontario Dental Association.



Mr. Bowen, right, is shown chatting with Dr. Ron Bell, left, past-president of the Ontario Dental Association.



CDA President Dr. Ralph Crawford, left, presents Mr. Lloyd Bowen, right, with League Award.

DENTAL ASSISTANTS' SURVEY CLAIMS SEXUAL HARASSMENT IN U.S. DENTAL OFFICES

According to a nation-wide survey in the United States, conducted by the American Dental Assistants' Association, 43 per cent of all working dental assistants have been victims of sexual harassment.

Contrary to popular myth, these victims did not feel they were "asking for it" and did not welcome the sexual attention they received. Less than one per cent of the women who were approached considered the advances flattering. The other 99 per cent told the ADAA they felt embarrassed, intimidated, or demeaned by the experience. Moreover, 61.79 per cent of all respondents felt that unwelcome male attentions on the job are offensive.

According to the ADAA, the problem of sexual harassment in dentistry is exacerbated by the traditional gender composition

of the dental office — female dental assistants working for male dentists. The situation is further complicated by the fact that most dental offices employ fewer than 15 workers and therefore do not fall under the jurisdiction of the U.S. Equal Opportunity Commission — the Federal agency charged with protecting workers against employment inequities, including sexual harassment.

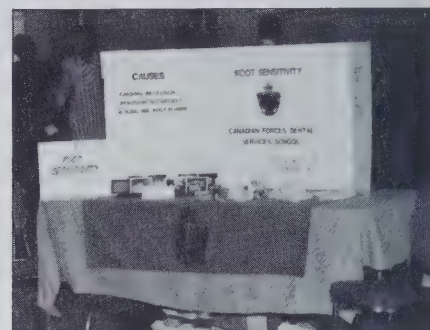
Respondents to ADAA's survey come from every income level and educational background within the spectrum of the dental assisting profession. The ages of those who wrote to share their experiences range from a 17-year-old student commenting on her first job experience to a 70-year-old veteran reflecting on half a century in the profession.

Interested parties may request free single copies of ADAA's sexual harassment survey by contacting the American Dental Assistants Association, 666 N. Lake Shore Drive, Suite 1130, Chicago, IL 60611. U.S.A.

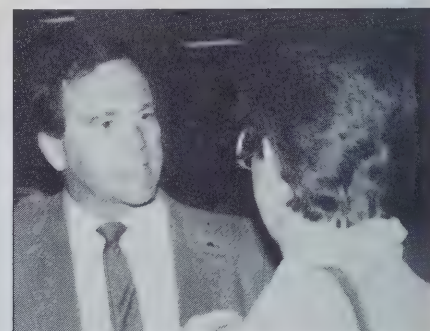
SCENES FROM THE ODA ANNUAL CONVENTION



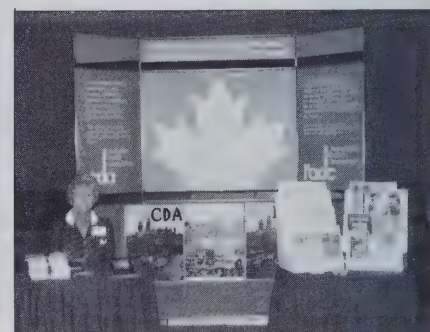
Many of the table clinics presented at the annual ODA convention in May were well attended.



A variety of subjects, including root sensitivity, were covered by the popular table clinic presentations.

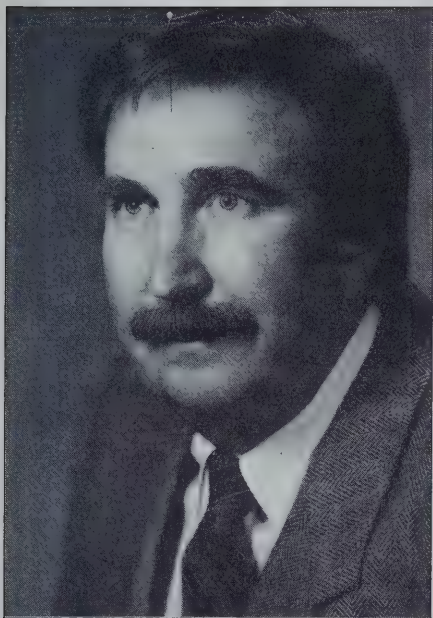


Dr. Brad Holmes, CDA President-elect chats with the Journal's Advertising Manager, Anna Spencer (back to camera) in the exhibit area.



Kathy MacTaggart, senior administration clerk at CDA, answered questions and distributed information from the CDA booth.

Briefly



Dr. Clement LeBlanc

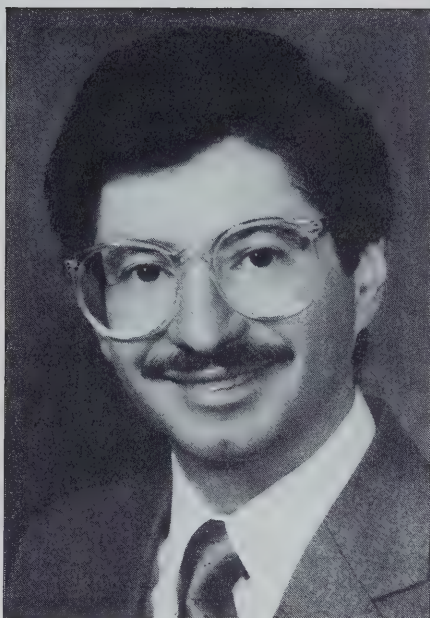
The New Brunswick Dental Society recently held its annual meeting, and elected Dr. Clement LeBlanc of Moncton as the Society's President for 1986.

The meeting was held in Grand Falls, New Brunswick and was hosted by the Upper Saint John Dental Society under the general chairmanship of Dr. J.L. Rioux.

Highlights of the meeting included a one-day seminar on Prosthodontics, presented by Dr. Norman Brien, a professor of prosthodontics at the University of Montreal. At the meeting the Society also confirmed its support of fluoridation as a public health measure and its continuing support of the fluoride mouthrinse program being carried out by the New Brunswick Department of Health.

Closing remarks were made to the delegates in attendance by Dr. LeBlanc. Dr. LeBlanc, a longtime member of CDA's Council on Information Services, is a graduate of the University of Montreal (1957). He is a past-president of the Moncton Dental Society and the Chief of Dental staff at Dr. G.L. Dumont Hospital, Moncton. He is also a Fellow of the International Academy of Dentistry.

Dr. Herb Borsuk, a Montreal dentist, has been elected President of the Alpha Omega-Mount Royal Dental Society in Montreal. Vice President for the year 1985-86, is



Dr. Herb Borsuk

Dr. Marvin Steinberg and Treasurer is Dr. Sam Israelovitch. Other elected officers of the Society include Dr. William Steinman, Corresponding Secretary, Dr. Michael Tenenbaum, Recording Secretary, Dr. Marvin Werbitz, Associate Treasurer, Dr. Mel Schwartz, Editor and Dr. Saul Levine, Regent.

The Alpha Omega-Mount Royal Dental Society is one of the prominent components of organized dentistry in the Montreal area and is involved in community work both locally and internationally.

The FDI News advises us that a new organization, The International Association of Gerodontology, has just been founded. The group includes practitioners from various countries who concern themselves with the elderly and their oral health problems. The Association already has a number of projects under way — Public Health — Epidemiology; Education — Curriculum; Research; Health Economics; Geriatric Clinic; Technology — Equipment.

The International Secretariat and Commission Officers, headed by the President, Dr. C. Berenholz (France), include members from Canada, France, the Netherlands, Sweden, the U.K. and the United States.

Their first scientific meeting will be held during the International Congress of the Association Dentaire Française, scheduled

in Paris on November 26 and 27th. The Association is applying for membership as an affiliate of the FDI.

The new group hopes many colleagues will join. Information is available from Dr. Anne Fiez Vandal, 152 boulevard Jean Jaurès, 92100 Boulogne, France.

Warner-Lambert Company, in cooperation with the American Association of Dental Schools (AADS) recently established a preventive dentistry award program.

The program will provide scholarships annually of \$5,000 each, for five dental students. The scholarships will be used to pay for tuition and other fees. The AADA will administer the program.

Scholarship nominees will be selected by administrators of the 60 American dental schools. A committee of dental educators has already been selected to choose five winners from among the nominees. Candidates will be judged on academic and clinical achievement through their junior year and participation in a preventive dentistry project of their own choosing.

For more information on the program, contact Warner Lambert Company, 201 Tabor Road, Morris Plains, New Jersey, 07950.

Awareness that fluorides give protection against dental caries may not be a relatively recent discovery after all.

A book: *The Early History of Fluorides as Anti-Caries Agents* — By R.A. Cawson and I.P.D. Stocker states that when a mammoth fossil was discovered in 1802, the fluoride content of one of its teeth was assayed, through the ability of an acid extract to etch glass and by the precipitation of calcium fluoride. It would appear that the assumption was made at that time, that the soundness of the ancient teeth could be attributed to the high fluoride content.

Yet we are told that the important discovery that fluoride provides protection against dental caries was made by N.J. Ainsworth in Britain in 1933.

The book also makes the interesting observation that a German medical journal in 1847 reported that fluoride pills were being recommended in England for the preservation of teeth and were being sold in Germany.

Maybe there really isn't anything "new under the sun."

Some dentists in the United States have hit upon a unique gift to give their patients following a visit: a kazoo.

One New York City dentist, formerly a trumpet player, began the practice of rewarding his patients with kazoos because he wanted them to have something they could have fun with. Giving kazoos to his patients also helped him share his own musical interest with them.

Another practitioner from Silver Spring, Maryland, has been giving kazoos to his child patients. The instruments have proven so popular in his practice that his adult patients want them too.

Made by Hohner Inc., the kazoos are available in quantities of 250 and can be purchased customized with a name and address or logo. Contact Hohner Inc., P.O. Box 15035, Richmond, Virginia, 23227 for more information.

The College of Dental Surgeons of Saskatchewan has set up a program called ADAC (Alcohol and Drug Abuse Committee) so that dentists, family members or staff, who are trying to cope with alcohol or drug-related problems would have somewhere to turn to, or be referred to, for help. The Committee (or service) the College notes, is a "stand alone" committee, there to offer advice, direction and encouragement to those who have contacted them. It will not report to the College Council, and is a program intended to be therapeutic, supportive and non-judgemental.

The service, a College report states, did not originate within the College Council, but rather from individuals within the College who recognized the need for such a program.

The program is similar to that now offered in British Columbia and Ontario.

During National Dental Health Month, representatives of the College of Dental Surgeons of British Columbia spent a full day in a caucus meeting with their Government MLAs, a visit to a session of the legislature, were involved in individual meetings with several government officials, and topped it off at an evening reception hosted by the College, for Social Credit MLAs and their spouses.

The immediate past College President, Dr. John Silver, the chairman of the Government Liaison Committee, Dr. Robert Hicks, Managing Director of the College, Ken Croft, and Registrar Dr. Roy Thordarson, were introduced in the legislature in an afternoon session. Later, the group met with the Sacred caucus to discuss dental issues, including amendments to the Dentists Act and the Dental Technicians Act.

The event is becoming a tradition for the

College. This is the second year it has been held. MLAs have indicated it is a welcome event in its year-round government liaison activities. The College finds considerable value in maintaining close communication.

Similar meetings with Opposition MLAs were held a month later.



Dr. Frank Shamy

Dr. Frank Shamy, formerly President of the Canadian Association of Orthodontists was recently a keynote speaker at the 85th annual session of the American Association of Orthodontists in Las Vegas, Nevada.

Speaking about orthodontic treatment without extractions, Dr. Shamy stressed the need for diagnostic analysis based on an evaluation of occlusal vertical dimension and freeway space.

Dr. Shamy is a graduate of McGill University (1956) and obtained his orthodontic degree from the Université de Montréal in 1964. He is currently in private practice in Montréal.

More than 6100 orthodontists and orthodontic assistants were in attendance at the meeting.

"Sounds Good," a television commercial for the Water Pik appliance, was recently recognized as the top Canadian commercial of 1985 at the Canadian Television Commercials Festival, winning the Gold Bessie Award. The Bessies are the equivalent of the Academy Awards, for Canadian TV advertising, and are sponsored jointly by the Broadcast Executives Society and the Television Bureau of Canada.

The Water Pik spot also came first in the health and beauty products category and

took a craft award in the talent classification. In addition, Ron Rubin, the young Toronto comedian who imitates the noises associated with dental care in the commercial, won the Kari Award as the best actor in a commercial.

The dental industry recently held its annual George Tobey Memorial Golf Tournament, an event designed to give dental dealers, manufacturers and distributors a day off from normally fierce competition.

Named for George Tobey, a one-time president of L.D. Caulk, the tournament took place in late May. The following golfers were the winners, and received a trophy, a plaque or another prize.

1st Low Gross	Bob Skura (74)
2nd Low Gross	John Clint (76)
3rd Low Gross	Dave Loft (76)
1st Low Net	Larry Perrott (70)
2nd Low Net	Rick Wooley (71)
3rd Low Net	Mark McCallum (71)

Low Net Seniors	Pete Temple
Low Gross Seniors	Blair Pollock
Most Honest Golfer	Shirley Wallace
Closest to Hole	Cathy Goudie
Longest Drive	Bill Milne
Tennis 1st	Al Heaps
Tennis 2nd	Art Zwingenberger

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on June 28, 1985.

<i>Common Stock Fund</i>	\$96.10153
<i>Fixed Income Fund</i>	\$46.22678
<i>Money Market Fund</i>	\$32.00184
<i>Balanced Fund</i>	\$18.75775

Total assets (market value) of the plan were \$45,362,277.

The previous month's figures, as of May 31, 1985, stood as follows:

<i>Common Stock Fund</i>	\$95.29689
<i>Fixed Income Fund</i>	\$45.71355
<i>Money Market Fund</i>	\$31.76951
<i>Balanced Fund</i>	\$18.65581

Total assets (market value) of the plan were \$44,937,115.

For further information write to: Canadian Dental Service Plans Inc., Ste. 600, 2 Lansing Square, Willowdale, Ontario M2J 4Z3 or call the central information services of CDSPI at 1-800-268-5418 (toll free number for Western Canada, Atlantic Canada and Ontario for Code 807 only, 1-800-268-3411 (toll free number for Quebec and Ontario except Code 807), and 497-7117 (Metro Toronto area).

CDA Convention ~ 1985



CONGRÈS DE L'ADC — 29 SEPT — 2 OCT. — CDA CONVENTION

'AN OUTSTANDING COMBINATION OF LEARNING AND FUN'

Dr. Donald O'Connor, Chairman, 1985 CDA Convention Committee, recently commented that "your CDA Convention Committee has developed a program of scientific presentations, exhibits and social events that promises to provide an outstanding combination of learning and fun."

Ample opportunities will be provided for delegates to explore the attractions of Canada's beautiful capital city, Ottawa, and the National Capital region, during the Convention being held from September 29 – October 2.

Pre-Convention courses

For the first time at a CDA Convention, a series of Pre-Convention participation courses is being offered by the Scientific Program Committee, on Sunday, September 29.

Three days of highly informative scientific sessions will be held during the Convention, revealing new concepts and procedures, counselling in practice management and panel discussions on dental subject matter of universal concern and interest. Presenters will be of international stature in the field of dentistry and dental specialties.

The Royal College of Dentists of Canada is holding a Symposium on Monday, September 30, on the subject of Facial Pain.

Also on September 30, the annual Grieve Memorial Lecture will be delivered by Dr. E.H. Williamson, Past Chairman, Orthodontics, Medical College of Atlanta, Georgia.

Dr. Williamson will speak on the subject: "Diagnosis, Prevention and Treatment, of TMJ Dysfunction in Orthodontics."

Massive array of exhibits

A massive array of exhibits of dental products will be on display in the Ottawa Congress Centre from the Sunday noon (Sept. 29) official opening, until Wednesday, Oct. 2. The exhibit area will be open from noon to 6 p.m. on Sept. 29; from



The Westin Hotel, one of the two headquarters hotels for CDA Convention '85, towers at the left, as a Rideau Canal tour boat, right, glides past the Ottawa Congress Centre, the location of most of the Convention sessions from September 29 to October 2. The National Arts Centre is just out of camera range behind the cyclists in the left foreground.



Hull, Québec's sparkling new Palais des Congrès, will be the scene of one of the major social events of the CDA Convention '85, on Tuesday, October 1. The "Bytown Bash", which will recall the turbulent and exciting days of lumbering on the Ottawa River (which flows close by), will be staged here. The vicinity of this National Capital area facility is also a good vantage point for a spectacular view of Parliament Hill, across the Ottawa River.

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9 a.m. to 6 p.m. on Monday and Tuesday, Sept. 30 and Oct. 1, and from 9 a.m. to 2 p.m. on Wednesday, Oct. 2.

Extensive auxiliary programs organized by the Canadian Dental Hygienists' Association and the Canadian Dental Assistants' Association, will provide educational sessions of vital importance and interest to delegates from those groups. They have also provided social events to ensure pleasant memories of the National Capital area long after the event.

Social program

The calibre of the social events at the Convention will meet the high standards set in recent years, and from all indications, will exceed them in '85.

The registration party, "Canada on Parade" on Sunday evening, Sept. 29, will feature Canadian culinary delights, soft music and a rousing salute to each Canadian province.

The major social event, the President's Gala, is scheduled the following evening. On this occasion, there will be dancing to the "Big Band" sound, following fine food and wine. There will be no formal presentations or speeches.

The "Bytown Bash" on Tuesday evening, October 1, will feature Ottawa Valley lore — an evening of food, refreshments, dancing, contests, and generally, fun activities. The dress will be early settlers' attire

and a major theme will be the early lumbering era of the Ottawa Valley. A prominent jazz band will entertain, along with the Family Brown, Canada's award-winning Country and Western group.

On Wednesday, October 2, a notable luncheon has been scheduled. The speaker will be Jack Donohue, coach of Canada's Olympic basketball team. He is acclaimed as one of this country's best after dinner (or luncheon) raconteurs.

Another facet of enjoyment, for the physically able, is the CDHA Fun Run. This annual event will be held amid the floral and verdant splendor of the Central Experimental Farm's Arboretum, on Sunday, September 29. For those who wish a pleasant form of transportation a tour boat will take FUNN RUNN participants to Dow's Lake, near the Arboretum and will return to a point near the Congress Centre, following the event. The departure time is 7.45 a.m. and the fee is \$2.50, each way.

For the adventurous and stout-hearted, the CDHA and CDAA have arranged white-water rafting experiences on the fast-flowing reaches of the Upper Ottawa River, on Saturday, September 28 and Sunday, September 29.

Spouses' program

A pleasant, relaxing, and in some aspects, spectacular program, has been arranged for spouses. This will include early morning fit-

ness classes on Monday, September 30 and Tuesday, October 1. A bus tour of the National Capital will be available, a fashion show at the National Arts Centre, a tour of the Parliament Buildings and a house and garden tour of some notable Ottawa residences and embassies.

Another event will be a leisurely tour through historic Lanark County, to enjoy the glorious fall colors, lunch at a country church, maple products and crafts, a visit to an antique shop, silverware shop, museum, clothing stores and outlets.

Health screening

A significant feature of CDA Convention '85 will be a health screening facility to detect any health problems among dental personnel, such as Hepatitis B or mercury effects.

This screening will be held in the reception area of the Ottawa Congress Centre. It will be a bona fide study and results will be published in a report.

It is being supported by the CDA, CFDE, CDSPI and the Merck-Frosst firm.

Post-Convention excursion

A post-Convention excursion to New York has been laid on, departing from Ottawa on Thursday, October 3. Those who have availed themselves of this opportunity will enjoy three full days in New York and return on October 6.

OPTIONAL TOUR OFFERED FOR SPOUSES

One of the two tours offered to spouses of delegates on Tuesday October 1, will be a tour of several prominent residences in the Ottawa area. Included on the tour will be the homes of several ambassadors.

Three ambassadorial residences are included in the tour: that of the Ambassador of France, the Ambassador of Mexico and the Ambassador of Morocco. All three are in suburban Rockcliffe Village.

The home of Conservative MP Bob Wenman is also on the tour. This house features a glass enclosed honey-coloured oak staircase in the foyer. The foyer, hall and kitchen floors are made of hand-cut, six-inch B.C. cedar blocks, each 2½ inches thick.

At press time, several more homes were being investigated by the spouses' committee for inclusion in the tour.



Ottawa's most familiar landmark, the Centre Block of the Parliament Buildings, with its Peace Tower, is also impressive by night, with its floodlighting.

PRE-CONVENTION '85 PARTICIPATION COURSES

For the first time at a CDA Convention, the Scientific Program Committee has organized a series of participation courses, which will be held on Sunday, September 29, at convenient locations throughout the City of Ottawa. It is intended that these limited enrolment courses will include those listed below in tabulated form.

These participation courses will only be available to Convention registrants.

The latest date for acceptance of applications for the courses is August 15. Fees will be refunded if courses are cancelled because of insufficient enrolment.

SUBJECT	PRESENTER	FEE
Custom Staining of Porcelain Crowns	Gary Jones, BSc. Technical Advisor Degussa Canada Ltd.	\$150
Custom Staining and Anatomical Modifications, Using Resin-Based Materials	Stephen H. Guss, DDS in private practice devoted to cosmetic and reconstructive dentistry in Fairfield, Connecticut. Richard M. Goldman, DDS, of Fairfield, Connecticut. He is the founder of the Academy of Reconstructive and Cosmetic Dentistry. Jerry B. Black, DMD, MS in a private practice in Birmingham, Alabama. The author of many scientific articles in national and international dental journals.	\$250
Emergency Office Procedures	Mel Hawkins, DDS, MScD in private practice limited to anaesthesia in Willowdale, Ont. Holder of certificate in Advanced Cardiac Life Support.	\$150
Basic Cardiac Life Support Rescuer	Mark Raizenne, BA, BSc Respiratory Physiologist with Health and Welfare Canada.	\$50
Hydrocolloid Techniques	David Goldshaw, LBIST Technical Instructor, Clinician and Sales Representative for precious metal company. Specialist Dental Technician	\$150
Basic Endodontics Will include a two-hour review of the cleansing, shaping and obturation of root canals.	Bernie Dolansky, BA, DDS, MS Graduate in Endodontics from North- western University, Chicago. President- Elect, Ontario Dental Association	\$150
Computers in Dentistry Hands-on course for dentists and office managers.	Jerry Thrasher Involved in computer software since 1970 both as designer and educator. Helped design Dental Practice Manage- ment System for ForceTen Enterprises.	\$150
Clinical Photography To introduce participants to the use of clinical photography in a private practice.	Rita Bauer Graduate of Polytechnical Institute in Linz, Austria, as a professional photographer. Specializes in medical and dental photography.	\$150
Quality Control in Radiology Panoramic, Cephalo- metric and Temporomandibular Joint Radiography	Richard Greenan X-Ray Specialist, Denar Corporation, former Products Manager, Ritter Company	\$150

NOTE: Detailed information about Convention events carried in this edition of JCDA was correct at press time. Deviations which may have occurred since that time were beyond the control of the Editorial Staff.

CONVENTION '85 SCIENTIFIC PROGRAM — AN UPDATE

Clinicians

Next month an international group of dentists and physicians will gather in Ottawa to participate in the Scientific Program of the 1985 CDA Convention. These clinicians are from as far afield as Australia, Denmark, Great Britain, the Southern United States, and a substantial representation from Canada.

The subjects to be discussed will range from Internal Medicine to Geriatric Dentistry from Computers to Tooth Coloring Systems, and from Pathology to Prosthetics.

There have been some alterations to a few lectures which were detailed in previous editions of the Journal, e.g.

1. **Dr. R.E. GOLDSTEIN** — has changed the title of his presentation to "The Cosmetic Dentistry Rainbow — Boon or Bust".

This presentation will consist of an update of current aesthetic techniques and materials, as well as offer a new procedure of patient education, in order to achieve a higher rate of aesthetic success.

2. **Dr. E.H. WILLIAMSON** — Grieve Memorial Lecturer — has stated that his presentation on "Diagnosis, Prevention and Treatment of TMJ Dysfunction in Orthodontics", will concentrate more on craniomandibular disorders, rather than on traditional orthodontics, and therefore should be of interest and value to the general practitioner.

Royal College Symposium

Every second year since 1977, the Royal College of Dentists of Canada has presented symposia on topics of importance and interest. This year, the subject is **FACIAL PAIN**. The schedule is as follows:

Morning Session — "Pain Mechanisms"

— Dr. K.C. Bentley, Chairman

"Current Concepts of Pain" — Dr. R. Melzack

"Facial Pain and its Control — New Insights into Old Problems" — Dr. B. Sessle.

Afternoon Session — "Management of the Patient with Chronic Facial Pain" — Dr. R.I. Brooke, Chairman

"Psychiatric Aspects of Atypical Facial Pain" — Dr. R. Remick

"The Douloureux and Atypical Facial Pain" — Dr. J.D. Loeser.

Pre-convention Courses

Nine Pre-Convention participation courses have been organized for Sunday, Septem-

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ber 29. The courses cover a variety of subjects and present an ideal opportunity to obtain practical experience at a modest cost. However, enrolment is limited and the absolute deadline for applications is August 15. In addition, only registered delegates to the Convention may apply for the participation courses.

Table Clinics

Approximately 31 table clinics will be on display from 2 to 5 p.m. on Monday, September 30. The table clinics have been organized by dentists who wish to share their experiences, interests and conclusions, with their colleagues. They would appreciate enthusiastic support.

Health Screening Survey

There will be an opportunity for dentists to participate in a number of health screening tests. The testing area will be located close to the Main Registration Area. The tests will be conducted in privacy by physicians. This screening is part of a major survey on the health of Canadian dentists, which will be undertaken during the next 12 months.

Active participation is encouraged.

Summary

Three full days of lectures and presentations constitute the basis of the Scientific Program which will be supplemented by the Pre-Convention Courses and the Table Clinics. The Health Screening Project will provide initial information on the relationship between health and the dental environment.

The Scientific Committee has developed a program which offers numerous events to satisfy a variety of interests. To be successful, the program must have participants, so come to Ottawa in the Fall, and discover a CAPITAL PLACE TO LEARN!

J. Hardie, BDS MSc, FRCD(C)
Scientific Chairman,
1985 CDA Convention.

MANY SPECIALTY GROUPS AND AFFILIATED BODIES WILL MEET IN OTTAWA

A number of dental specialty groups and affiliated organizations have scheduled gatherings in Ottawa before and during, the Canadian Dental Association's Annual Convention.

These include:

- The Canadian Association of Restorative Dentistry, September 26-28, at the Westin Hotel;
- The Canadian Academy of Prosthodontists, September 26-28, also at the Westin Hotel;
- The Canadian Academy of Endodontics, September 26-29, at the Four Seasons Hotel;
- The Canadian Academy of Orthodontists, September 26-29, at the Château Laurier Hotel;
- The Canadian Academy of Paedodontics, September 27-28, at the Westin Hotel;
- The Academy for International Study, September 27, at the Château Laurier Hotel;
- The Royal College of Dentists of Canada, at the Château Laurier Hotel, September 28;
- The International Academy of Dentistry, September 28, at the Château Laurier Hotel;
- The International College of Dentists, September 28, at the Château Laurier Hotel;
- The Association of Prosthodontists of Canada, September 29-Oct. 1, at the Four Seasons Hotel;
- The Canadian Society of Public Health Dentists, September 29-30, at the Château Laurier Hotel;
- The McGill University Class of '75 Reunion, September 29, at the Westin Hotel;
- The Pierre Fauchard Academy Breakfast, September 30, at the Westin Hotel.

HEALTH SCREENING PROVISION FOR DENTISTS AT CONVENTION '85

An important feature of Convention '85 will be a free health screening provision for dentists, organized by the Canadian Dental Association and supported financially by the Canadian Fund for Dental Education (CFDE), Canadian Dental Service Plans Inc. (CDSPI) and the Merck-Frosst firm.

The project is designed to test up to 162 dentists (limited to the first 162 volunteers) for specific known occupational health hazards in the practice of dentistry. It will also provide a data base which may be analyzed for additional hazards.

Results of the physical examinations and laboratory tests will be sent to those tested by the Ottawa Civic Hospital, whose medical and technological staff will conduct them. Strict confidentiality of patient records will be observed.

Dentist-volunteers will receive a free physical examination and related laboratory testing specifically designed to determine dental occupational hazards. Those who avail themselves of this service will help not only themselves but the dental profession, and in addition, get an examination worth close to \$100 which is not readily available elsewhere.

Near registration desk

The testing facility will be located in an area of the Ottawa Congress Centre immediately adjacent to the registration desk. A health screening receptionist will be identified at a nearby desk and screened areas will be provided for those undergoing the physical examinations.

Interested parties may make an appointment at the project desk. They will receive a questionnaire and requisition forms to complete, to authorize laboratory tests. A specific time for the examination will be assigned, and the process involves less than a half hour.

Nature of tests

When the candidate arrives for an appointment, appropriate documentation will be verified and a blood sample taken. Hair and fingernail samples will also be taken. The individual then will report to a physician for height, weight and blood pressure readings, and an assessment of general fitness.

The samples taken will be subject to a number of tests, including: Blood chemistry — (SMAC)

CDA CONVENTION HOTELS

The following table lists the hotels with blocks of rooms for CDA Convention delegates. For hotels in downtown Ottawa and their exact locations, refer to the map of the downtown area.

HOTEL	LOCATION	PHONE
Westin Hotel*	Colonel By Drive	560-7000
Chateau Laurier*	1 Rideau Street	232-6411
Four Seasons	150 Albert Street	238-1500
Skyline	101 Lyon Street	237-3600
Holiday Inn (Ottawa Centre)	100 Kent Street	238-1122
Holiday Inn (Market Square)	350 Dalhousie Street	236-0201
Delta	361 Queen Street	238-6000
Roxborough	127 Metcalfe Street	237-5171
Lord Elgin	100 Elgin Street	235-3333
Plaza de la Chaudière	2, Rue Montcalm, Hull	778-3880*
*CDA Headquarters Hotels	(*Area Code 819)	AREA CODE 613

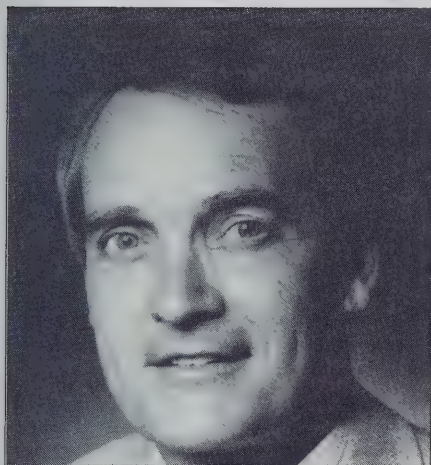
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Serologic tests for:

- (i) Hepatitis B antigen and antibody
- (ii) Epstein-Barr virus antibody
- (iii) HTLV III antibody

Special laboratory tests for determination of exposure to mercury may also be conducted.

The value of the screenings is two-fold. First, individuals receive a specialized, individual, confidential assessment of their health status. Secondly, a data base will be created which has tremendous potential for research purposes.



Dr. Donald J. O'Connor

CONVENTION CHAIRMAN, DR. O'CONNOR GIVES CREDIT TO SOCIETY COLLEAGUES

Dr. Donald J. O'Connor, the Ottawa GP serving as general chairman of the 1985 CDA Convention, recently told the Journal the program "is in good shape" largely because of the experience and organizational abilities of colleagues within the Ottawa Dental Society.

Much of this experience came about through necessity, he said. Because there is no dental faculty in the Ottawa area, and dentists wished to have the benefit of continuing education courses, members of the Ottawa Society became involved in setting up programs and engaging lecturers to provide that service. As a result, "we have a good group experienced in putting on programs," Dr. O'Connor said. Many of these people are members of the Convention committee, and "I think I was born to delegate," he noted.

However, the Winnipeg-born graduate of the University of Toronto Faculty of Dentistry (1958) has a wealth of organizing

experience of his own. This was gained through activities in fishing and golf clubs, scouts, little league baseball, etc. Professionally, Dr. O'Connor has served as President of the Ottawa Dental Society, the Ottawa Association for the Prevention of Dental Disease (which arranges the continuing education programs) and which Dr. O'Connor continues to serve as Permanent Secretary, and was for three terms (6 years) a Governor of the Ontario Dental Association. He was also the founder and a past-president, of the Ottawa Dental Study Club.

The Ontario Dental Association honored him in 1984 with an award for his service to that organization.

Dr. O'Connor is a Fellow of the International College of Dentists.

DR. LAWRENCE YANOVER DENTAL RESEARCHER TO GET CDRF AWARD

Lawrence Yanover, DDS, Dip. Paedo., PhD, who is engaged in full time research in oral microbiology within the Faculty of Dentistry, University of Western Ontario, London, will receive the 1985 Canadian Dental Research Foundation (CDRF) Award.

Dr. Yanover, who is also the recipient of a 1985 Medical Research Council (MRC) Centennial Fellowship, won the CDRF Award on the basis of his research report: "A Clinical and Microbiological Examination of Gingival Disease in Parapubescent Females." This research was conducted at the University of Toronto.

He will receive the Award (\$1,000 and a plaque) during the Canadian Dental Association's Annual Convention in Ottawa, September 29 - October 2.

The Institutional Trophy, presented to the dean or representative of the faculty of dentistry where the CDRF Award winner conducted the research, will be awarded on the same occasion.

U of T graduate

Dr. Yanover, who is 30, and a native of Hamilton, Ont., is a DDS graduate of the Faculty of Dentistry, University of Toronto. Following graduation, he spent a year at the Forsythe Dental Centre in Boston, which, he said, "convinced me to take my initial plunge into research." It was there also, he told the Journal, that he was personally convinced there should be a continual and close relationship between dental research and wet-fingered dentistry.

He then spent a year in Israel, doing clinical work in a small settlement in the desert.

PhD in 1984

Dr. Yanover returned to the University of Toronto and entered the Paedodontics program. He received his Diploma in Paedodontics in 1982.

Continuing his research in oral biology, he received his PhD in 1984. The research paper which won the CDRF Award was based on investigation conducted during the preparation of his PhD thesis.

The MRC Centennial Fellowship has made it possible for him to do post-doctoral work at the University of Western Ontario for two years.

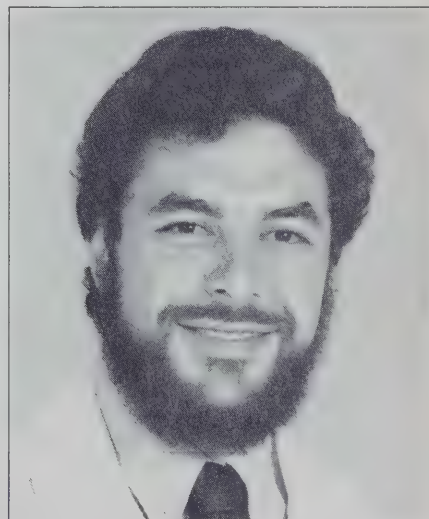
At the moment, his work, under the direction of Dr. David Banting, is a study of the use of microbiologic agents in altering oral flora in geriatric patients and trying to reduce the incidence of caries. He is also continuing some work in investigation of bacterial flora as it relates to hormones.

Now an Assistant Professor, Dr. Yanover believes he should devote his research to clinical investigation - "with people, instead of rats."

He also teaches at the University of Western Ontario and practises in a London, Ont. clinic.

Articles in JCD

The nature of some of Dr. Yanover's research is already familiar to readers of this Journal. Two of the most recent research report manuscripts of which he was author or co-author, which were published in the Journal, were: "Fluoride Varnishes as Cariostatic Agents" - JCD Vol. 48:6; 401-404, and "Drug Induced Xerostomia - the Effects and Treatment" - JCD Vol. 51:4; 296-300.



Lawrence Yanover, DDS, Dip. Paedo., PhD

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SCIENTIFIC PROGRAM

DATE	HOURS	TOPIC	SPEAKER	LOCATION
Monday, Sept. 30	9 a.m. to 12 Noon	Should there be a computer in your practice?	Dr. T.L. Snyder	Lecture Room E
		Royal College of Dentists of Canada, Symposium		Lecture Room A
		Facial Pain — "Pain Mechanisms"	Chairman: Dr. Kenneth C. Bentley	
		"Current Concepts of Pain"	Dr. R. Melzack	
		"Facial Pain and its Control: New Insights into Old Problems"	Dr. B.J. Sessle	
		Grieve Memorial Lecture Diagnosis, Prevention and Treatment of TMJ Dysfunction in Orthodontics	Dr. E.H. Williamson	Lecture Room B
	Afternoon 2 – 5 p.m.	Royal College of Dentists of Canada — Symposium		Lecture Room A
		"Management of Patients with Chronic Facial Pain"	Chairman: Dr. Ralph I. Brooke	
		"Psychiatric Aspects of Atypical Facial Pain"	Dr. R. Remick and	
		"The Douloureux and Atypical Facial Pain"	Dr. J.D. Loeser	
		Students' Table Clinics		Lecture Room C
		Practitioners' Table Clinics		Lecture Room B
		The Changing Face of Paediatric Dentistry	Dr. R.K. Hall	Lecture Room E
Tuesday, Oct. 1.	Morning 9 a.m. to 12 Noon	"Cosmetic Dentistry Rainbow — Boon or Bust?"	Dr. R.E. Goldstein	Lecture Room E
		Panel Discussions on Internal Medicine "The Etiology and Current Approach to Cardiac Disease"	Dr. H.M. Amos Chairman Dr. W.L. Williams	Lecture Room B

CDA Convention ~ 1985

DATE	HOURS	TOPIC	SPEAKER	LOCATION
Tuesday, Oct. 1		Update on Blood Dyocrasias, Diabetes Mellitis and Rheumatoid Arthritis	Dr. A.L. Weinberg	Lecture Room B
		The Etiology and Current Treatment of Cancer	Dr. C.E. Danjoux	Lecture Room B
		Periodontal Therapy in the 1990s	Dr. C.A. McCulloch	Lecture Room A
	Afternoon 2 - 5 p.m.	"Cosmetic Dentistry Rainbow - Boon or Bust?"	Dr. R.E. Goldstein	Lecture Room E
		Oral Medicine and Pathology	Dr. J.J. Pindborg	Lecture Room A
		Prosthetic Dentistry	Dr. A.S.T. Franks	Lecture Room B
Wednesday, Oct. 2	Morning 9 a.m. to 12 Noon	Geriatric Dentistry	Dr. A.S.T. Franks	Lecture Room E
	9 to 11 a.m.	"Dentistry and the Law - A Dentist's View"	Dr. W.J. Dunn	Lecture Room B
	9 to 12 Noon	Symposium on Oral Cancer "Recognition and Diagnosis of Oral Cancer"	Chairman: Dr. James Main Dr. J.J. Pindborg	Lecture Room A
		"The Treatment of Oral and Related Cancers"	Dr. L.J. Eapen	
	11 a.m.	"Oral Complications of Cancer Chemotherapy and Radiotherapy" "The Four Dimensional Tooth-Colouring System"	Dr. J.B. Epstein Mr. J.B. Nagy	Lecture Room B

CDA Convention ~ 1985

DATE	HOURS	TOPIC	SPEAKER	LOCATION
Wednesday, Oct. 2	Afternoon 2 - 5 p.m.	Panel on Ridge Augmentation "Basic Research and Surgical Techniques in Ridge Augmentation" "Prosthetic Rehabilitation of Augmented Ridges"	Chairman: Dr. S.P. Kucey Dr. P.J. Boyne Dr. G.A. Zarb	Lecture Room E
		Symposium on Oral Cancer "Oral Hygiene and Preventive Programs for Cancer Patients"	Chairman: Dr. J.B. Epstein Mrs. J. Thomas	Lecture Room A
		"Dental Restorative and Surgical Care for Cancer Patients"	Dr. G. Bradley	Lecture Room A
		"Prosthetic Dental Care for Cancer Patients"	Dr. P. Stevenson-Moore	Lecture Room A
		"Provincial Health Plans and Financial Support for Dental Care of Cancer Patients"	Dr. J.H.P. Main	Lecture Room A
		Update on Endodontics	Dr. B.H. Dolansky	Lecture Room B

* All scientific sessions at being held at the Ottawa Congress Centre, unless otherwise indicated.
All scientific sessions are open to Auxiliaries and Spouses.
All scientific sessions in Lecture Room E will have simultaneous translation.

SOCIAL PROGRAM

DATE	TIME	EVENT	LOCATION
Sunday Sept. 29	7 p.m.	Registration Party "Canada on Parade"	Ottawa Congress Centre
Monday Sept. 30	12.15 (Noon hour)	CDA Luncheon	Confederation Ballroom Westin Hotel
	7 p.m.	President's Gala Evening Dancing to "Big Band" sound	Confederation Ballroom Westin Hotel
Tuesday, Oct. 1	7 p.m.	The "Bytown Bash" Ottawa Valley lore	Palais des Congrès Hull, Qué.
Wednesday, Oct. 2	12.15 (Noon hour)	Luncheon Speaker: Jack Donahue raconteur	Westin Hotel

CDA Convention ~ 1985

SPOUSES' PROGRAM

DATE	TIME	EVENT	LOCATION
Sunday, Sept. 29	10 a.m.	Registration and Information	Ottawa Congress Centre
	12 Noon	Official Opening of Exhibit Area	Ottawa Congress Centre
	7 p.m.	Registration Party: "Canada on Parade"	Ottawa Congress Centre
Monday, Sept. 30	7.30 a.m.	Wake up Workout	Westin Hotel
		45 Minutes (Numbers will warrant)	
	8 a.m.	Registration and Information	Ottawa Congress Centre
	9.30 a.m.	Bus Tour of the Nation's Capital	
	12.15 p.m.	Luncheon and Fashion Show	National Arts Centre
Tuesday, October 1	7 p.m.	President's Gala Evening (Additional ticket item)	Westin Hotel
	7.30 a.m.	Wake up Workout (45 minutes) (Numbers will warrant)	Westin Hotel
	9 a.m.	Tours (Limited numbers)	
	to	House and Garden Tour and	
	4.30 p.m.	Luncheon. Visit five prominent Ottawa homes and embassies.	
	9.30 a.m.	Lanark County Tour. Lunch at coun- try church. Leisurely drive through picturesque countryside in all its autumn splendor.	
Wednesday, October 2	to		
	4 p.m.		
	7 p.m.	Bytown Bash	Palais des Congrès Hull, Québec
	7.30 a.m.	Wake up Workout (45 Minutes) (Numbers will warrant)	Westin Hotel
	Morning Free		
	12.15	Luncheon with Delegates	Westin Hotel

Spouses' Registration also includes access to all open scientific sessions and exhibits. A hospitality suite will be open throughout the Convention

PROGRAM — CANADIAN DENTAL HYGIENISTS' ASSOCIATION

DATE	TIME	EVENT	LOCATION
Friday, Sept. 27	9 a.m.	CDHA Board of Directors Annual Meeting and Workshop	Château Laurier
Saturday, Sept. 28	9 a.m.	CDHA Board of Directors Annual Meeting and Workshop	Château Laurier
	7.30 a.m.	Special Event — Whitewater Rafting	Departure from Château
	12.30 p.m.	on the Ottawa River	Laurier
Sunday, Sept. 29	Departures		
	7.30 a.m.	Whitewater Rafting on the Ottawa River	Departure from Château Laurier
	Departure		
	8.30 a.m.	CDHA Board of Directors Annual Meeting	Château Laurier

CDA Convention ~ 1985

DATE	TIME	EVENT	LOCATION
Sunday, Sept. 29	Also at	Community Dental Health	Château Laurier
	8.30 a.m.	Hygienists' Workshop	
	9 a.m.	CDHA FUNN RUNN	The Arboretum, Central Experimental Farm
	12 Noon	Registration and Information	Château Laurier
Monday, Sept. 30	4 p.m.	Ottawa River Cruise	
	7 p.m.	"Canada on Parade" Reception	Ottawa Congress Centre
	8 a.m.	Registration and Information	Château Laurier
	9 a.m.	Motivational Techniques to Change Health Habits	Château Laurier
		Marjorie Kort, RN, BScN	
	12 Noon	President's Luncheon	Château Laurier
	2 p.m.	"Memory and Recall" Chuck Eberley	Château Laurier
	8 p.m.	CDHA Monte Carlo Dance "The Las Vegas Swing"	Château Laurier

DENTAL ASSISTANTS' PROGRAM

DATE	TIME	EVENT	LOCATION
Saturday, Sept. 28	7.30 a.m.	Special Event. Whitewater Rafting on the Ottawa River (Extra ticket item)	Departure from the Château Laurier
	12.30 p.m.		
	9 a.m.	CDAA Board of Directors Meeting	Westin Hotel
Sunday, Sept. 29	9 a.m.	CDAA Annual Meeting	Westin Hotel
	Also 9 a.m.	CDAA-CDHA FUNN RUNN	The Arboretum, Central Experimental Farm, Ottawa.
Monday Sept. 30	10 a.m.	Registration and Information	Ottawa Congress Centre
	2 p.m.	Ottawa City Tour	
	7 p.m.	"Canada on Parade" Reception	Ottawa Congress Centre
	8 a.m.	Registration and Information	Ottawa Congress Centre
	9 a.m.	"Motivational Techniques to Change Health Habits" Marjorie Kort RN, BScN	Château Laurier
	12 Noon	President's Luncheon	Westin Hotel
	2 p.m.	"Memory and Recall" Chuck Eberley	Château Laurier
	8 p.m.	CDHA Monte Carlo Dance "The Las Vegas Swing"	Château Laurier
	8 a.m.	Registration and Information	Ottawa Congress Centre
	9 a.m.	"Keeping Your Patients Caries Free" Dr. Herschel Horowitz and Mrs. Alice Horowitz, RDH	Château Laurier
Tuesday, October 1	1.45 p.m.	Report from Working Group on Dental Hygiene Dr. Roger Ellis, Marnie Forgay, Kate MacDonald, Pat Johnson	Château Laurier
	2 p.m.	P & M Workwear Fashion Show	Westin Hotel

CDA Convention ~ 1985

DATE	TIME	EVENT	LOCATION
Tuesday, October 1	3.30 p.m.	Developing Clinical Practice Standards for Canadian Dental Hygienists — Sheryl Feller, MBA, RDH	Château Laurier
	7 p.m.	The "Bytown Bash"	Palais des Congrès Hull, Québec
Wednesday, October 2	9 a.m.	Breakfast and Walking Tour of Parliament Buildings	Parliament Hill
Tuesday, Oct. 1	8 a.m.	Registration and Information	Westin Hotel
	9 a.m. to 5 p.m.	"The Marketplace" Craft Room featuring Ottawa Valley crafts.	
	9 a.m.	"Keeping Your Patients Caries Free" — Mrs. A. Horowitz, RDH, Dr. Herschel Horowitz	Château Laurier
	12 Noon	Luncheon	Château Laurier
	1.45 p.m.	Report from Working Group on Dental Hygiene. Dr. Roger Ellis, Marnie Forgay, Kate MacDonald, Pat Johnson	Château Laurier
	3.30 p.m.	Developing Clinical Practice Standards for Canadian Dental Hygienists — Sheryl Feller, MBA, RDH	Château Laurier
	7 p.m.	The "Bytown Bash"	Palais des Congrès Hull, Qué.
Wednesday, Oct. 2	8 a.m.	Registration and Information	Château Laurier
	9.30 a.m.	Brunch	Skyline Hotel
	10.30 a.m.	Dental Hygiene Papers Barbara Zier and Charla Lautar-Lemay	Skyline Hotel
	11.30 a.m.	"How Can We Meet the Needs of the Geriatric and Handicapped Patient in Canada?" Panellists: Alice Horowitz, Pat Johnson, Jenny Thomas, Dr. Roger Ellis	Skyline Hotel

RESOURCE CENTRE

The Library/Resource Centre is looking forward to meeting with you at Booth 507 at the CDA Convention. Our booth will be adjoining the National Research Council's and terminals will be in place for on the spot computer searching. Please feel free to stop by to meet with us and we will be glad to answer any questions you may have regarding the Resource Centre or to search your dentally related topics. We will also be offering workshops on information retrieval, specifically on MEDLINE each day during

the Convention at 9 a.m., 11 a.m., 2 p.m. and 4 p.m. Sunday, September 29, however, the Workshop will be at 2 p.m. and 4 p.m. only. These sessions will deal with an explanation of the MEDLARS database and will guide you through a search from its inception to an explanation of the finished print-out. For more information please contact the Library/Resource Centre at (613) 523-1770. You may call collect.

CDA CONVENTION '85 EXHIBITORS

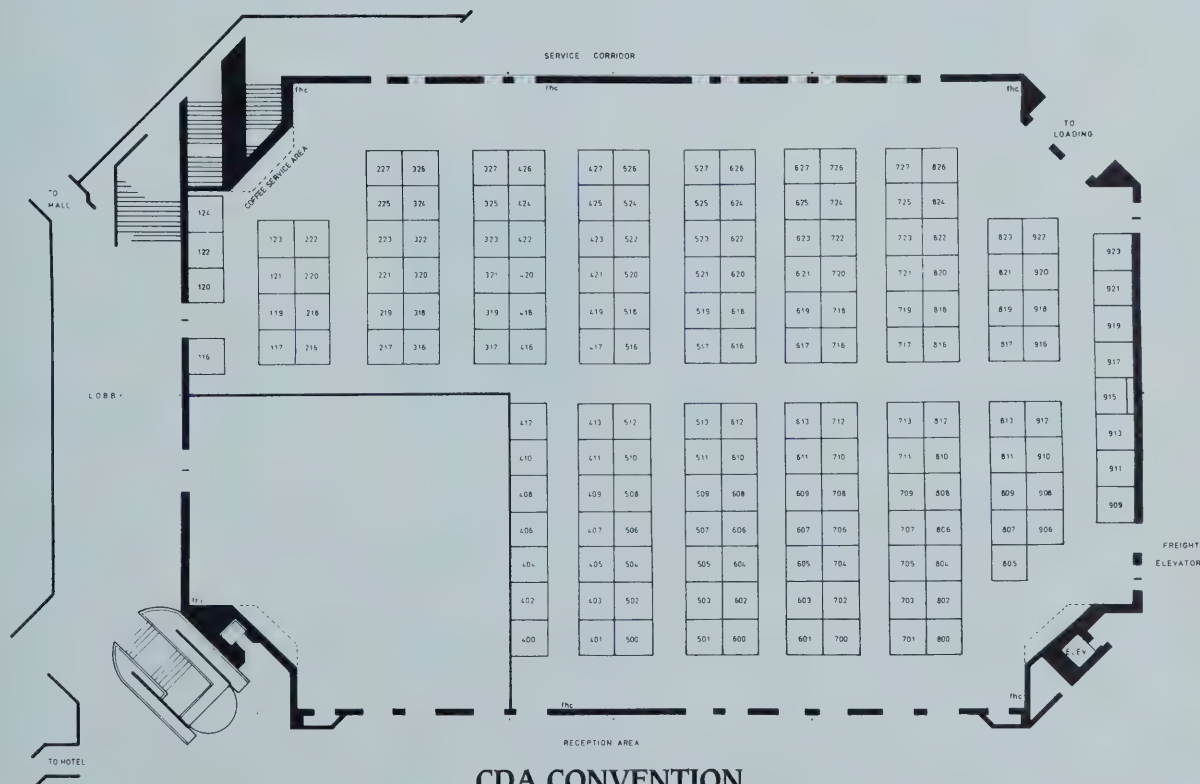
COMPANY NAME	BOOTH NUMBER	COMPANY NAME	BOOTH NUMBER
3M CANADA INC.	709 711 713	HU-FRIEDY MFG COMPANY	909
A-DEC INC	512	INSTITUT DENTAIRE	
AMADENT/AMERICAN MEDICAL & DENTAL CORP	120	INTERNATIONAL	808
ASH TEMPLE LTD	805 807 809 811	INTER-DENT INTNL SUPPLY CO	
BEECHAM CANADA INC	915	OF CANADA	607
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CANADA LIMITED	617 619 716 718	IVOCAR-VIVADENT CANADA	
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INC.	405	JOHN O BUTLER COMPANY	419
BEUTLICH INC	416	JOHNSON & JOHNSON (HEALTH	
BLOCK DRUG COMPANY	401 403	PRODUCTS)	604
BOFORS NOBELPHARMA		JOHNSON & JOHNSON INC	
CANADA INC	810	DENTAL LAB PRODUCTS	600 602
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C D CHARLES INC	519	KODAK CANADA INC	418
C V MOSBY CO LTD	122	LUX & ZWINGENBERGER	
CANADIAN DENTAL SERVICE		LIMITED	221
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COLUMBUS DENTAL	813	COMPANY	324
COMPUTER UTILITY		MEDI-DENT SERVICE	217 219
MANAGEMENT LIMITED	420	MEDICAL ADMINISTRATION INC	913
COOK-WAITE LABORATORIES	316 318	MERRELL DOW	
DATAMATION	320 322	PHARMACEUTICAL	812
DDS COMPUTER SYSTEMS INC	620	MODULAR & CUSTOM CABINETS	605
DE LUCA DENTAL		NATIONAL RESEARCH COUNCIL	
LABORATORIES	806	CANADA	505
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DENCO, DIVISION OF SYBRON		NOVOCOL-BUFFALO DENTAL	
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DENTAL DEPOT CANADA LTD		ORTHO ORGANIZERS	225
(HEALTHCO)	117 119 216 218	ORTHO-DENT LABORATORIES	922
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	712	O'RYAN DISTRIBUTING	702
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ENCYCLOPAEDIA BRITANNICA	411	SYSTEMS INC	910
EXAN COMPUTER SYSTEMS &		POSEN & FURIE DENTAL	
SERVICES LTD	816 818	LABORATORIES LTD	506
EXPRESS DENTAL SUPPLIES	325	PREMIER DENTAL (CANADA) INC	522
FIRST CITY MEDICAL LEASING	522	PRO-MAR PRE COLLECTION	
FORCETEN ENTERPRISES INC	608 610 612	SERVICES INC	921
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G.D. SEARLE & CO. OF CANADA		PROFESSIONAL	
LTD	911	PHARMACEUTICAL CORP	421
HERDT & CHARTON INC	321	PROVIDENT LIFE & COULTER	
HOECHST CANADA INC —		FINANCIAL PLNG	407
PHARMACEUTICAL DIV	326	RATHMANN & ST JOHN	
		ORTHODONTIC LABS	707

COMPANY NAME	BOOTH NUMBER
RHONE POULENC PHARMA INC	227
RIDEAU ORTHODONTIC MFG LTD	923
ROCKY MOUNTAIN ORTHODONTICS CANADA LTD	513
SAFEGUARD BUSINESS SYSTEMS LTD.	523
SEAL LAB GROUP (SHAW LABORATORIES LTD)	518
SHOFU DENTAL CORPORATION	409
SIEMENS ELECTRIC LIMITED	121 123
SPACE MAINTAINERS LABORATORIES CANADA	609
STAR DENTAL/SYNTEX DENTAL PRODUCTS INC	408
SYSTEMS BUSINESS FORMS LIMITED	511
TELEDYNE WATER PIK CANADA	508 510
THE CAULK CO OF CANADA	717 719 721
THE PELTON & CRANE COMPANY	601 603
THE PERMANENT	917 919
THE UPJOHN COMPANY OF CANADA	622

COMPANY NAME	BOOTH NUMBER
TORONTO DOMINION BANK – COMMERCIAL DIV	804
TRANS-CANADA DENTAL LIMITED	524
TRI HAWK INTERNATIONAL INC	410 412
UNIDENT LIMITED	317 319
UNIFORM WORLD	116
VAN R DENTAL PRODUCTS INC	424
VMR BUSINESS SYSTEMS LIMITED	820
W B SAUNDERS COMPANY CANADA LIMITED	323
W M DENTAL SUPPLY LTD	821 823
WARNER-LAMBERT CANADA INC	701 703
WHALEDENT INTERNATIONAL	705
WHITEHALL LABORATORIES	327
WILLIAMS GOLD REFINING CO OF CANADA LTD	124
WRIGHT DENTAL CANADA LTD	417
WRIGLEY CANADA INC	912

OTTAWA CONGRESS CENTRE

CENTRE DES CONGRÈS D'OTTAWA



CDA CONVENTION
CONGRÈS DE L'ADC
 Sept. 29 – Oct. 2

EXHIBITORS

EXPOSANTS

The Canadian Dental Hygienists' Association

Invites you to

COME WHITEWATER RAFTING WITH US

*Plan a day in the Outdoors with Equinox Adventures,
white water rafting on the picturesque Ottawa River
Professional Guides lead you through awesome stretches
of rapids in Hypalon paddle rafts*

The Excursion Includes:

- Chartered bus to from Chateau Laurier
- Lunch on the river bank
- Safety equipment (life jackets, helmets and wet suits)
- Beverage on return bus trip

Cost: \$75.00/Person/per trip

Itinerary

Morning:

Saturday, September 28

Sunday, September 29

Depart Hotel 7:30 a.m.

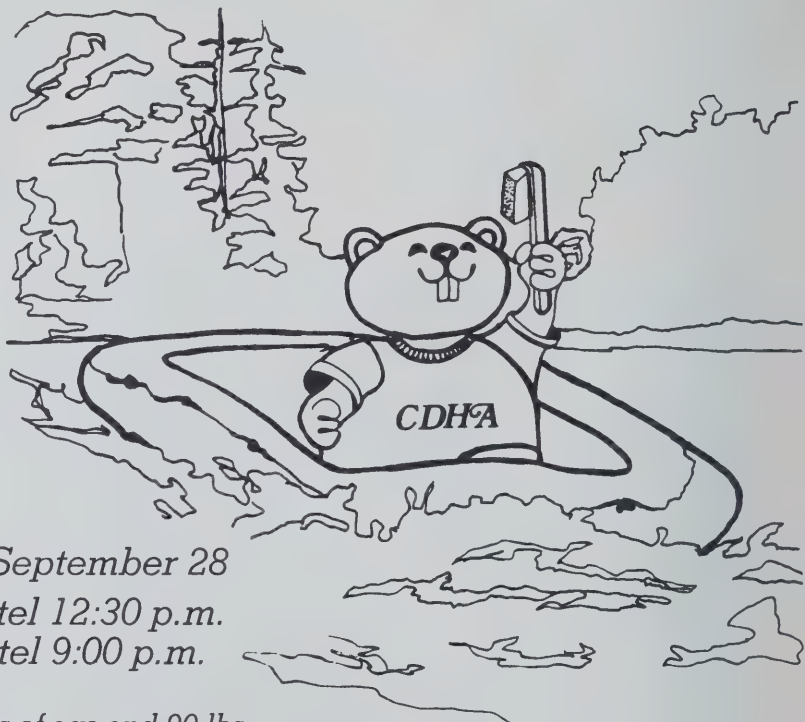
Return Hotel 4 - 5:00 p.m.

Afternoon:

Saturday, September 28

Depart Hotel 12:30 p.m.

Return Hotel 9:00 p.m.



**Note: It is suggested children be at least 12 years of age and 90 lbs.*

Return application with cheque or money order to:

Ms. Sandra Lee, 57 Spruce Street, Ottawa, Ontario K1R 6N8

Application should be received by September 1, 1985, to guarantee placement.

Make cheque payable to: CDHA (Convention '85)

NAME _____

ADDRESS _____

NO. OF PEOPLE IN PARTY _____ PHONE _____

DAY: SATURDAY _____ SUNDAY _____

TIME: 7:30 A.M. _____ 7:30 A.M. _____

OR 12:30 P.M.

PRECONVENTION PARTICIPATION COURSES

SUNDAY SEPTEMBER 29, 1985

Custom Staining of Porcelain Crowns: Gary Jones

This course will stress specifics: how to take and record accurate shades, how to modify and contour crowns and how to custom stain and alter shades at chairside, using a small inexpensive glazing furnace. You'll cover shade determination, lighting, communicating with the laboratory, tooth preparation, metals, internal modifications, contour, texture and external staining. Each participant will have the skill building opportunity of changing shades and custom staining a crown that will be provided.

Fee: \$150.



Gary Jones, B.Sc., Dental Technology is the Technical Advisor for Degussa Canada Ltd. and also their manager of Training and Technical Services. He has many years of

experience and specializes in crown and bridge and porcelain.

Clinical Photography: Rita Bauer

This course will introduce the participants to the use of clinical photography in a private practice: The session will include, review of photographic principles; equipment selection modifying present personal equipment for dental photography; guidelines and techniques for a basic series of patient photographs (facial and intraoral views); use of retractors and mirrors; photographing objects associated with dentistry. Participants are encouraged to bring their own equipment and slides for discussion and assessment at consultation time. Hands on experience will allow the participants to take slides during the course which will be processed and the group will evaluate the results. AGD credits are given.

Fee: \$150.



the teaching hospitals in Hamilton for eight years. She joined the staff of the University of Toronto, Faculty of Dentistry in 1978 where she does much of the patient photography.

Hydrocolloid Techniques: David Goldshaw

This course will include an introduction to the material, its properties and handling requirements. This will be followed by a detailed description of the clinical technique. All participants will have ample opportunity to take impressions and pour models in a private practice environment.

Fee: \$150.



David Goldshaw (Licenciate for the British Institute of Surgical Technologists) L.B.I.S.T.

Associated with the dental industry for 13 years.

Trained as a specialist Dental Technician at the Eastman Dental Hospital - London, England.

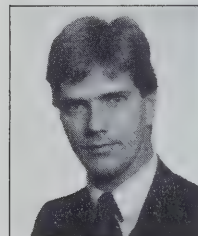
Worked with an International Dental company throughout Europe starting in Research and Development, graduating to Laboratory Materials Specialist.

Emergency Office Procedures: Dr. Mel Hawkins

The professional dental team has a legal and moral obligation to understand how best to treat the high risk patient and a right to the satisfaction that comes from attaining confidence in such a critical area. Both come from practise and participation in a clinical hands on environment like the one

offered in this course. You'll cover such emergency risk reduction techniques as: skillful intertwining of C.P.R. with equipment adjuncts; the methods of preventing an emergency; thorough slide presentation on ABCD emergency armamentarium (building an office emergency kit); applying the use of this equipment on mannequins; discussion of drug applications to an emergency; the initiation and maintenance of intravenous lifeline; how to take and interpret accurate blood pressure readings; case presentation and mock emergencies. Participants may give and receive IV's and IM injections.

Fee: \$150



Mel Hawkins, D.D.S. B.Sc.D. (Anaesthesia) is in private practice limited to anaesthesia in general dentistry in Willowdale, Ontario.

He graduated from the University of

Toronto in 1973 and returned for his anaesthesia degree in 1974. Dr. Hawkins worked for 5 years with the undergraduate and post-graduate program in general anaesthesia, sedation and local anaesthesia at the University of Toronto. He is a holder of a Certificate in Advanced Cardiac Life Support.

Basic Endodontics: Dr. Bernie Dolansky

The endodontic participation program will include a two hour review of the cleansing, shaping and obturation of root canals. We will use a step-back incremental filing technique that produces a funnel shaped canal. Obturation will be with gutta percha in a two step lateral-vertical condensation technique. The participation component of the course will use extracted teeth.

Each dentist should select anteriors, bicusps and molars that are of a degree of difficulty corresponding to his or her expertise. An instructor can then help each individual at that person's own level.

Fee: \$150



Dr. Bernie Dolansky graduated University of Montreal, Faculty of Dentistry. He received his M.S. in endodontics from North Western University in 1973. He has been chairman of the ODA's continuing education committee for the past 7 years and has given numerous presentations in Canada, the USA and Europe. He has been President of the Ottawa Dental Society and is presently President-elect of the Ontario Dental Association.

CUSTOM STAINING & ANATOMICAL MODIFICATION USING RESIN BASED MATERIALS

DR. R. GOLDMAN, DR. H. GUSS, DR. J. BLACK

Session 1

The Art and Science of Using Color in Bonding: Dr. Goldman

Use of value, chroma and hue to determine correct shades; Custom tinting to create aesthetic individualized restorations; Opaque vs translucent shades and their application.

Richard M. Goldman, D.D.S., a graduate of New York University College of Dentistry is in private practice in Fairfield, Connecticut, and is a Fellow of the Academy of General Dentistry. Dr. Goldman is the founder of the Academy of Reconstructive and Cosmetic Dentistry, is a member of the American Society for Dental Aesthetics, is an alumnus of the L.D. Pankey Institute for Graduate Dentistry, and is Co-chief of the Department of Prosthetics at Park City Hospital, Bridgeport, Connecticut.

Session 2

Color Theory Applied to Aesthetics: Dr. Guss

Laboratory fabricated custom microfill restorations for anterior and posterior teeth; Hiding intrinsic stains; Creation of new dentin shades.

Stephen H. Guss, D.D.S., is in a private practice xx and reconstructive dentistry in Fairfield, Connecticut. He received his dental degree from the New York University College of Dentistry, is a fellow of the Academy of General Dentistry, a member of the American Society for Dental Aesthetics, and an alumnus of the L.D. Pankey Institute for Graduate Dentistry. Dr. Guss is Co-chief of the Department of Prosthetics at Park City Hospital, Bridgeport, Connecticut.

Session 3

The Next Wave: Posteriors Expanded Applications for Composites: Dr. Black

Indications for use, cavity preparation, matrix application, restoration, finishing and polishing of posterior composite resins. The steps required for placing a class I and a class II posterior restoration.

Jerry B. Black, D.M.D., M.S. Dr. Black is in private practice in Birmingham, Alabama. He received his degrees from the University of Alabama School of Dentistry where he was formerly an Associate Professor in the Department of Operative Dentistry. As a result of his research, Dr. Black has authored scientific articles which have appeared in national and international dental journals.

Inclusive cost for 3 sessions \$250.

Computerization: Jerry Thrasher

A hands on course for dentists and office managers. To help you:

1. Identify if there is an advantage in office computerization.
2. To understand the potential computerization can provide, in the areas of office management, practice building, and reduced paper work.
3. Obtain criteria to look for when assessing the various software and hardware systems available.

Fee: \$150



Jerry Thrasher graduated from Carleton University and started his career with N.C.R. He is now the Product Manager for Health Care Systems, ForceTen

Enterprises Incorporated.

Jerry has been involved in the computer software environment since 1970, both as a designer of software and as an educator.

Quality Control in Radiography: Richard Greenan

The objective of the 1 day workshop will be to present Panoramic, Cephalometric and Temporomandibular joint radiography in a manner that will assure the participants, diagnostic and therapeutic quality radiographs. Participants are encouraged to bring representative samples of their radiographic records for evaluation and discussion during the hands on portion.

Course Outline: Equipment exposure parameters; Imaging Systems, Film/Screen Combinations; Equipment/Techniques Utilized; Patient Positioning Guidelines and suggestions; Anatomical Landmarks; Film Interpretation; Corrected and Optional Views; Manual and Automatic Film Processing; Processing Pitfalls; The Auxiliary's Role.

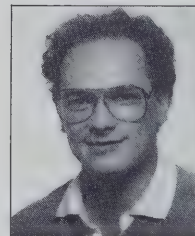
Fee: \$150

Richard W. Greenan Franklin Pierce College — Boston University — U.S. Naval Dental Technician School — U.S. Naval Electricity and Electronics School — U.S. Coast Guard Dental X-ray Technologist — X-ray Specialist/S.S. White Company — X-ray Products Manager/Ritter Company — Present: X-ray Specialist/Denar Corporation — Active member: American Academy of Dental Radiology.

Basic Cardiac Life Support Rescuer: Mark Raizenne

A short lecture component of the workshop addresses cardiopulmonary anatomy, pathophysiology, risk factor reduction and methods of access to emergency medical services. The emphasis of the workshop is on the development of skills in: one and two rescuer CPR; conscious and unconscious adult obstructed victim; conscious and unconscious infant obstructed victim and infant CPR modalities to the Performance Standards defined by the Canadian Heart Foundation. Upon successful completion of the workshop, registrants will receive a wallet-sized Ontario Heart and Stroke Foundation certificate card at the BCLS rescuer level. Course will take place from 8:30 am until 3:00 pm and will be given at the Heart Institute of the Ottawa Civic Hospital.

Fee: \$50



Mark Raizenne, BA, BSc. is presently employed as a Respiratory Physiologist with Health and Welfare Canada. He has extensive training and experience in

Kinanthropology which he has been able to apply to the area of CPR training.

These courses are limited attendance courses. Please indicate choice in order of priority on the main convention registration form. Course organizers wish to express their appreciation to the Continuing Education Committee of the Ontario Dental Association for the services of Dr. Dolansky and Dr. Hawkins. Deadline for pre-convention course registration is August 16, 1985.



10 KM CDHA DENTAL FUN RUN

Sunday, September 29, 1985

9:00 A.M.

ARBORETUM

CENTRAL EXPERIMENTAL FARM

OTTAWA

Entry Deadline Date: September 6, 1985

Entry Fee - \$8.00 (per person)

NAME _____

ADDRESS _____

T-Shirt Size

Men's

Ladies'

☐ S☐ M☐ L☐ S☐ M☐ L

Please make cheque payable to: **The Canadian Dental Association** and
mail along with completed registration form to:

Canadian Dental Association

1815 Alta Vista Drive

Ottawa, Ontario K1G 3Y6

ACCOMMODATIONS & ATTRACTIONS

- | | | | |
|-----------------------------|--------------------------------|--|-----------------------------------|
| A Westin Hotel | 4. Visitors Information Bureau | 17. Rideau Hall | 26. Majors' Hill Park -- Noon Gun |
| B Plaza de la Chaudière | 5. National Gallery | 18. Laurier House | 27. Lester B. Pearson Building |
| C Skyline Hotel | 6. Bytown Museum | 19. University of Ottawa | 28. Customs & Excise Exposition |
| D Four Seasons Hotel | 7. Sightseeing Boat Cruises | 20. Supreme Court of Canada | 29. Sparks Street Mall |
| E Château Laurier Hotel | 8. Sightseeing Bus Tours | 21. National Library & Public Archives | 31. Currency Museum |
| F Holiday Inn Downtown | 9. Byward Market | 22. Garden of the Provinces | 32. National Postal Museums |
| G Holiday Inn Ottawa Centre | 10. Canadian Ski Museum | 23. National Museum of Man | |
| H Hotel Roxborough | 11. Nepean Point | Natural Sciences | |
| J Inn of the Provinces | 12. Canadian War Museum | 24. Centennial Flame | |
| K Lord Elgin Hotel | 13. Royal Canadian Mint | 25. Chaudière Falls | |
| 1. Parliament Buildings | 14. Ottawa City Hall | | |
| 2. National War Memorial | 15. Rideau Falls | | |
| 3. National Arts Centre | 16. Prime Minister's Residence | | |

CONVENTION CENTRES

33. Palais des Congrès
34. Ottawa Congress Centre



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Daily Registration

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Day(s) attending _____

Includes that day's scientific sessions, exhibits

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Hygiene — complimentary

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Day(s) attending _____

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Includes scientific sessions and exhibits only.

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- ☐ Single ☐ Double ☐ Twin ☐ Triple ☐ Other _____

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KEYES TECHNIQUE

LA TECHNIQUE KEYES

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One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

NEW LIBRARY ACQUISITIONS

TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

1. American Dental Association. Marketing Services Department. *Dental Marketing Planner.* Chicago: the Association, 1983. 148p. 1 copy.
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4. Hammersen, Frithjof. *Histology: Color Atlas of Microscopic Anatomy.* Baltimore: Urban & Schwarzenberg, 1985. 260p. 1 copy.
5. Manhold, J.H. and Black, Cecelia. *Practical Dental Management: Patients and Practice.* St. Louis, Missouri: Ishiyaku EuroAmerica, 1984. 182p. 1 copy.

THE DENTAL SPECTRUM ANTIBIOTIC



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AN ESSENTIAL HEALTH SERVICE

My erudite classmate, Dr. Marvin Klotz has editorialized (May 1985) on a contemporary concern which this profession well might debate and rationalize — child dental neglect. It may be of use, in order to keep our thoughts in order, to clear up a couple of areas where I think Dr. Klotz may have inadvertently led us astray.

Firstly, irrespective of "inherent, social, racial and economic bias", preponderance of public opinion, as expressed in Ontario by "An Act Respecting the Protection and Well-being of Children and Their Families", seems to support access to basic health care for all children. If a child is a member of a low or marginal income family should they be at risk for their future well-being because the family is unable to afford basic health care? Should a child be required to suffer unduly because of parental ignorance, indifference or state of mental health?

The profession of dentistry has accepted and nurtured the premise that dental treatment is an essential health service. It is this concept which largely provides us the somewhat fragile right to be a self governing profession. It is this concept which underlies all the efforts made publicly and privately to finance adequate dental care. Surely, it is one of the concepts which distinguishes dentistry as a profession. Given that basic dental care is an essential health service, all children have a right to this particular care just as they have a right to equivalent medical care, food, shelter and clothing.

Secondly, Dr. Klotz must have a set of guidelines different from the one in use by public health agencies in Ontario. Our working definition refers to urgent primary caries as "large lesions in *crucial* primary teeth". This is not the place to outline the standing orders upon which our public health hygienists base their referrals, but sufficient to state that criteria are written to adequately guide them in decision-making.

Thirdly, the concept of the dentist as a "policeman" is not an acceptable analogy.

A policeman is someone who enforces certain legally mandated regulations, ultimately by laying a charge against an offender. The latter has an option to accept responsibility (guilty) or seek redress through the courts. The policeman's role, in the issue of child neglect, is that of Children's Aid personnel.

The dentist's role is that of "responsible citizen" which assumes that collectively everyone has an interest in the public being. In the same way we should feel obligated to report a suspicion that a neighbour's house is being burgled, we have a general responsibility as citizens and, by law, a specific responsibility as dentists to report our *suspicion* of possible child neglect. It is up to Children's Aid to determine if these suspicions are real and to initiate proper action.

Understandably private practitioners have some difficulty with this obligation not only because of the impact reporting may have upon the dentist:patient relationship but also because they become subject to a charge that their actions are self seeking. How fortunate that the overwhelming preponderance of these cases will be detected by the public health system which is not fettered by these realities.

Finally, in case my colleagues fear that the public health dentist may assume an exaggerated, authoritarian stance, please believe that we take seriously the admonition contained in the final document circulated to all Health Units — "Whatever system is developed by individual Health Units, it should reflect a positive attitude in assisting the family to resolve an important problem and not an autocratic method of forcing parental compliance".

I am not particularly proud of the five families we referred to Children's Aid in the Muskoka-Parry Sound Health Unit nor the 32 referred in Simcoe County over the past two years. My staff and I do take pride, however, in the 2,000 or so children identified with acute or urgent dental conditions we have motivated to seek care from our local practitioners over the same two years. In particular, I am pleased about the 400 of these children from low or marginal income

families for whom we have successfully found financial support. Prior to our public health intervention, at best these children would have received episodic emergency treatment for relief of pain only.

Now if my friend Marv really wants to stir something up, how about an editorial clarifying the profession's attitude toward dentists who tell parents that they needn't worry about their children's abscessed teeth or who decide to "observe" large, obvious carious lesions in permanent teeth as they grow even larger!

Dr. T.W. Hicks, DDS, DDPH
Director of Dental Services
Simcoe County District Health Unit,
Midhurst, Ontario

VARIATIONS IN RATE OF SALIVATION

The article "Drug Induced Xerostoma" by Grad, Grushka and Yanover in the April 1985 issue of the Journal is an excellent timely review and research paper. The following comment is not intended to detract from its value.

Unfortunately the authors cite Guyton's text for the total volume of saliva of 1.0-1.5 litres secreted daily which is quoted widely in the medical literature. Schneyer et al.¹ emphasized that the 24 hours salivary volumes cited in the literature ignored the fact that salivation is greatly diminished during sleep. The 24 hour volume is more like 750 ml/day in man or about 1/5 of the total plasma volume according to his studies. Albeit this is a minor point it does emphasize the relative neglect of medical physiologists in overlooking the contributions of oral physiologists. Regretably even current editions of physiology textbooks continue to use the 1.0-1.5 litre/day figure.

¹Schneyer, L.H., Young, J.H. and Schneyer, C.A. Physiological Reviews.

Leon Kraitz, Ph.D.,
Professor,
Department of Oral Biology,
Faculty of Dentistry
University of British Columbia

Book Reviews

DENTAL MORPHOLOGY — AN ILLUSTRATED GUIDE

van Beek, Geoffrey C.

Second Edition

John Wright and Sons (Printing) Ltd.

Bristol

135 pages. Illustrated, Soft Cover

Buried deeply within my soul of souls, there survives a flame of fear that cautions me to suspect than any dentist who dare pass less than idyllic comments about a book whose sole purpose is the description of human dentition, will be destined to spend eternity ravaged by purveyors of periodontal disease in dental purgatory. Surely, however, a volume written explicitly for dental students but reviewed by a crusty old practitioner who graduated twenty years ago and authored by someone as chameleon-like as to be capable of changing names from Geoffrey Downer in the first edition to Geoffrey C. van Beek in this second edition allows some space for critical manoeuvrability. One might even argue, that the ambition that fuelled his first edition, while still a student himself, has been jaded by his own years of practice. Well, the facts be known, this little text is quite useful, passably readable, always well illustrated, and thoroughly unimaginative.

Assuming that the masticatory apparatus of Southwest England (the source of the author's 1000 dental models) varies minimally from those of Haligonian or Vancouver origin, the resulting drawings, all in third angle projection, offer concise, accurate reproductions of all of the common nuances that readily separate a maxillary second molar from its more posterior neighbour or a mandibular right first bicuspid from its sinister counterpart.

To expected sections detailing the intricacies of deciduous and permanent tooth morphology, the author has added a third division dealing with endodontic anatomy. Lest the hazards of the three dimensional pulp be incompletely appreciated by the

naive student, Dr. van Beek encourages the reader to split open a few teeth for direct inspection, wisely reminding his audience that "the discovery of the pulp cavity in vitro is preferable now, (rather) than later in vivo. . . . in clinical dentistry." He even includes directions for this devious action through the clever utilization of diamond disc, sturdy wooden block, plasticene and chisel.

Each tooth is dealt with in a similarly organized manner — its chronology, a general description, concise principal identifying features and variations — all in three or four paragraphs, followed by the illustration, always in line drawing. Carabelli's cusp and Zuckerkandl's tubercle, as well as the Zsigmond System of dental shorthand receive their just recognition, but surely a historic note as to their nomenclature derivation would have helped enliven an otherwise workman-like but uninspiring text.

The biggest problem with this kind of book lies in the unlikelihood of its continuing use much beyond the preclinical years of dentistry. Its addition to a practitioner's permanent library is therefore unjustified.

*This book was reviewed by
Dr. John H. Gryfe, an oral surgeon in
Weston, Ontario*

"DENTISTRY, DENTAL PRACTICE AND THE COMMUNITY"

D.S. Striffler
W.O. Young
B.A. Burt

*W.B. Saunders Co., Toronto, Ontario
1983, 512 Pages \$28.60*

This book is the third edition that began with Pelton and Wisan's *Dentistry in Public Health* (1949 and 1955), followed by *The Dentist, His Practice, and His Community* (1964 and 1969), and now by *Dentistry, Dental Practice, and the Community*.

The book has 15 chapters which are organized into six sections. Two notable

changes from the previous edition are the emphasis on social setting of dental health practice and separation of fluoridation into a chapter in its own right.

The first section on "sociology of dental practice" deals largely with the development and organization of dentistry in the U.S.A. In section II, following an introductory chapter on methods for assessing the distribution of oral diseases, the distribution of the major oral diseases in the United States and several other countries and the factors influencing that distribution are described. Dr. Burt points out: . . . "epidemiological studies show dental caries is considerably more prevalent in Western industrialized countries than in economically developing countries." He goes on, "There are indications of a decline in caries prevalence in the United States and some other Western industrialized countries and a sharp rise in caries prevalence, at least in urban areas, in developing countries . . . Periodontal disease is widespread throughout the world, . . . (it) still seems to be responsible for a greater degree of tooth loss than does dental caries."

The Section III on "prevention and control of oral diseases" has a wealth of well-documented and practical information concerning water fluoridation, other fluorides, plaque control, diet and nutrition.

In Section IV on "evaluation of scientific literature" Dr. Horowitz explains and describes, through use of examples, the necessity for making logical and orderly analysis of scientific information.

The penultimate section on "meeting the demand for dental care", although largely based on data obtained from U.S. studies, raises several issues of concern to all in the dental professions. For example: Dr. Striffler suggests some interesting approaches that the beginning dental professional may take in these times of perceived oversupply of dentists and dental hygienists; Dr. Burt, writes on financing for dental care services.

The book concludes with a chapter on dental health education by Dr. Malvitz who dis-

cusses the complexities of the theory and practice of dental health education at the individual and community level.

Throughout, much information in the book is presented in the form of tables and figures to help the reader. This edition of *Dentistry, Dental Practice and the Community* is an excellent reference text for undergraduate and graduate students in community dentistry. Many of the issues confronting the dental profession today are discussed throughout the book so that the practising dentist, as well, will find much of this book interesting.

Reviewed by
Dr. S.B. Doshi
Director
Division of Community Dentistry
Department of Health
St. John's, Newfoundland

DENTAL MANAGEMENT OF THE HANDICAPPED: APPROACHES FOR DENTAL AUXILIARIES

Brian M. Lange, Ph.D.;
Beverly M. Entwistle, R.D.H.,
M.P.H.; Laurette F. Lipson,
M.N. Ed.;

*Philadelphia, Lea and Febiger,
1983, \$12.00*

'The intent of this book is to help fill a void in dental auxiliary education in the area of special patient care. The text is designed as an instructional manual for the student and as a reference manual for the practicing dental auxiliary.'

The 192 pages are logically arranged into an Introduction; 10 chapters about patients with medical problems who require special patient care; and an Index. Each chapter includes a definition and description of the medical problem, treatment, psychosocial implications, dental implications, dental management, treatment planning, preventive measures, and patient scenarios.

The book is well-researched and well-written. The frequent illustrations and tables appropriately supplement the written information.

Because of the well-organized presentation the book is easily readable but at the same time most informative. The book fulfills its intent because it most adequately instructs the dental auxiliary about the medical problems as well as special patient care. The content of the book is educational as well as practical in its usage.

The overall construction quality of the book appears good. The plain but pleasing presentation of the book allows for the reasonable cost price to the consumer.

This book serves an important function as a single comprehensive reference text about dental care for patients with special medical problems. I recommend this book to dental auxiliary students as well as practicing dental auxiliaries and dentists. This book will fill important gaps that exist in the training of dental-care professionals about special patient care. I think it will be a helpful resource text to me in the treatment of private practice as well as hospital dental patients with special medical problems.

This book was reviewed by
Sylvia Vause, R.D.H., B.A.

LEGAL LIABILITY OF DOCTORS AND HOSPITALS IN CANADA

Ellen I. Picard, B.Ed., LL.B., LL.M.

Carswell Legal Publications, 1984
Toronto, Calgary, Vancouver
\$34.00 — Softcover
556 pp.

If Canadian dentists were to include only one legal treatise within their professional libraries then 'Legal Liability of Doctors and Hospitals in Canada' is unquestionably the one to own. Dentists should not be put off by the title. Although, in the main, the author employs the term 'doctor' in relationship to medical practitioners, the word within the text does have generic applicability. And to suggest that 'Health Care Personnel' (which better reflects the scope of the work) be substituted for 'Doctors' is probably to cavil.

The first edition, which appeared in 1978, has had a major impact on both the legal profession and health care professionals. As an authoritative resource and a summary of the law on the liability of health care personnel and hospitals it has been widely and understandably quoted. The author's intent, admirably achieved, was the production of a treatise readable by non-lawyers (only the relatively infrequent employment of legal phraseology is permitted to escape without explanation) but with the analyses and references required by lawyers and judges. The updated second edition continues to reflect the original goal.

In most texts of this genre, one might suppose that at least some of the chapters would hold little interest for dental practitioners. But all eleven are totally pertinent and relevant. Even the appendices, which are very readable, constitute a reference source from which one can readily glean the pertinence of the most significant cases impacting on the legal liability of dentists.

The work is logically presented beginning with the doctor-patient relationship, then

to civil actions including assault and battery, and to contract, consent, negligence, the health professional in court, and legal liability for the acts of others, and health care records. The chapter on the hospital embraces the roles of the health care professionals within it and is particularly helpful to dentists with hospital appointments and those contemplating the seeking of hospital privileges.

The concluding chapter on 'the future' cautiously concludes that Canada has not had, does not have, or need not have a liability crisis. But to believe that the law will not have an increasing impact on the practice of the health professionals would be to ignore the ever increasing expectations on the part of the public of what the health care system can deliver.

In only one area, do I wish the treatise had commented slightly more extensively. Notwithstanding that statutes of limitation in such provinces as British Columbia, New Brunswick, and Ontario provide that the limitation period for the initiation of an action arising out of alleged negligence or malpractice does not begin until the plaintiff/patient 'knows or should have known' of the relevant facts to the action, and notwithstanding that the author — whose distinguished services, incidentally, are enjoyed by the Faculty of Dentistry of The University of Alberta — clearly enunciated the applicable law, the non-legal reader might conceivably conclude that the law perceives some identifiable date when such action would be statute barred. There is an applicable legal maxim which those versed in Latin may recognize as, *expedit reipublicae ut sit finis litium*, 'it is for the public good that actions be brought to a close.'

The circumstances of an Ontario case prompted a June 1983 decision in the Ontario Court of Appeal which has the effect, at least in that province, of effectively placing no terminal date on the possible commencement of a malpractice action.¹ Although the alleged negligence of the surgeon took place in early 1968, no action was initiated until more than a decade had elapsed but the action of the plaintiff was (among other considerations) ruled not to be statute-barred on that account.

Professor Picard's treatise can be read by the health care professional and lawyer alike with great interest and for enormous benefit.

Reference

- 1. *Perrie v. Martin et al* 42 O.R. (2d) 127.

This book was reviewed by
Dr. Wesley J. Dunn, Professor
Division of Community Dentistry
Faculty of Dentistry
The University of Western Ontario
London, Ontario

Specialty Features

THE DENTAL HYGIENIST AN IMPORTANT MEMBER OF THE PERIODONTAL TEAM

Frances R. Cotton, RHD, BScD
Supervisor, Dental Hygiene Program
Wascana Institute, Regina, Saskatchewan

Claude G. Ibbott, DMD, FRCD(c)
Periodontist
410 Midtown Centre, Regina, Saskatchewan

ABSTRACT

As the focus of the general dental practice places more time and emphasis on periodontal therapy, the team work between the dentist, hygienist, and specialist endeavours to aid the patient to regain oral health. Three phases of treatment are involved. The dental hygienist is a major contributor to the initial and maintenance phases and plays a major role in determining the sequence of therapy.

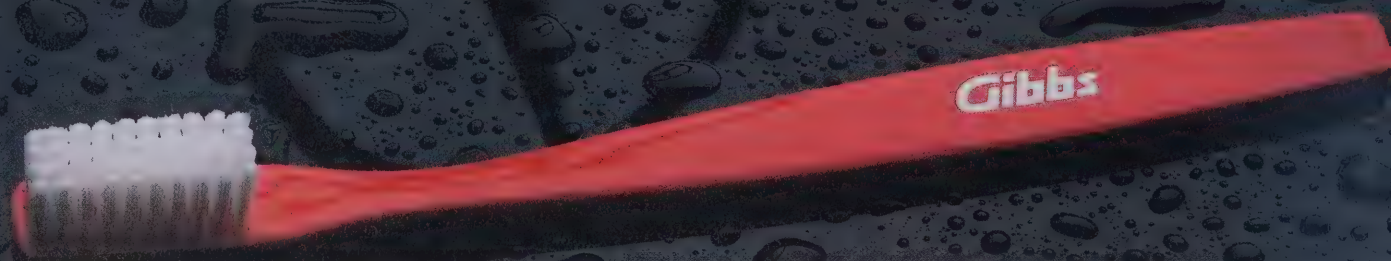
INTRODUCTION

Dentists in North America are currently changing their treatment focus away from the hard tissues. Research, fluoridation and diet have all contributed to winning the war on dental caries. Yet the clean-up and repair will still keep the profession occupied for years to come. Due to the extent of damage

afforded through caries, dental schools in the past have spent the majority of their time teaching caries control and repair.¹ Consequently, general practitioners have continued this process into their practice. Any periodontal therapy that was done was usually delegated to the hygienist as a routine 'scale and polish' or referred out to the periodontal specialist. An increasing awareness of periodontics by both the practitioner and the public, plus a change in the economic times have necessitated a shift in focus within the general dental practice. Already the focus is shifting towards minor orthodontic treatment and TMJ therapy in everyday practice.

The expanded media of the 1980s has enabled the lay public to question many health practices and dentistry has not escaped the ensuing pressure for quality answers and assurances to those questions. The 'Keyes Controversy' originated because

Paul Keyes elected to take his 'cure' to the public² before his treatment modality was scientifically tested in accordance with professionally accepted methods of research. People who had attended their dentist every six months were suddenly informed they had periodontal disease. As a result, lawsuits for supervised neglect have been successfully launched in the United States. These lawsuits often included the dental hygienist as well as the general practitioner.³ Third party payment plans have been allowed to dictate treatment planning by refusing to cover such services as root planing and oral hygiene instruction or to cover them only on a once/year basis. Until the profession can convince the public that these services are essential to oral health, many individuals will continue to see these services as luxuries or non essential.¹ Periodontal health is essential to oral health. Restoring the dentition while the tis-



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sues are in an active state of disease is analogous to replacing a roof on a house whose basement is crumbling! Periodontal disease can only be brought under control by teamwork, and that team consists of the general dentist, the periodontist and the dental hygienists who work with them.

Periodontal Therapy

Periodontal therapy has as its chief goal the preservation of the natural dentition in a state of health.⁴ Two basic approaches are utilized in periodontal treatment. These approaches may be classified as Non-Surgical and Surgical. Although many dentists are adept at both approaches to therapy, traditionally the dentist has been oriented to surgery and the hygienist to a non-surgical role in periodontal treatment.

Dental plaque is the causative factor in the initiation and progression of periodontal disease. The daily removal of plaque is most important in disease treatment and prevention. The controversial nature of periodontal treatment is chiefly related to the problem created by the periodontal pocket. The pocket is "an abnormal apical extension of a gingival crevice caused by a migration of the junctional epithelium along the root as the periodontal ligament is detached by a disease process."⁵ The periodontal pocket

creates an environment where plaque can proliferate protected from mechanical removal by cleaning aids. The disease process results from supragingival plaque making its way into the gingival crevice. As plaque comes into intimate contact with the gingival attachment fibres, loss of attachment may begin. In pockets deeper than 5 mm there may be as little as 0.2 mm between the plaque front and the epithelial attachment.⁶

The issue is not one of surgical treatment but one of access to the subgingival plaque as part of therapy and the subsequent maintenance of a plaque-free environment by the patient.

Team Approach to Treatment

Traditionally the dentist has been responsible for diagnosing and treatment planning for the periodontal patient. Within the team approach the dental hygienist would be responsible for data collection and initial patient assessment. Treatment planning is then a collaboration between the dentist and the dental hygienist with the hygienist responsible for dental hygiene care while the dentist would continue to be responsible for the patient's overall dental care.^{7,8} The team approach can be accomplished in three phases.

A. First Phase

The objective of the first phase of treatment is to gain tissue health and to eliminate as many causative factors as possible. When this treatment shows a positive tissue response and the patient demonstrates both persistence and effectiveness in his daily mouth care, then the second phase of treatment may be considered.^{9,10} The most critical component of the first treatment phase is bacterial plaque control,^{8,9,10,11,12,13} along with acceptance by the patient that plaque control is his own responsibility.^{14,15} The dental hygienist is the primary health care provider during this first phase. During this initial treatment phase the hygienist scales and root planes the teeth to a glossy finish in order to remove the nidus for plaque accumulation. Should limited occlusal adjustment be indicated, this procedure would follow at the end of the first phase. Success of the initial treatment would be determined by clinical and bacteriological indicators as reflected by the plaque index, gingival index, pocket exudation and possibly microscopic examination of subgingival plaque. Re-evaluation and progression to the second treatment phase would be determined jointly by the dentist, the dental hygienist and the patient.

Non-surgical root planing as a definitive treatment (as proposed by such techniques as the Keyes method) is fraught with unpredictability. Waerhaug has demonstrated that subgingival dental plaque cannot be completely removed on a predictable basis when pocket depths exceed 3 mm.⁶ He demonstrated that the degree of pocket depth was inversely correlated with the chance of success. If pocket depth was less than 3 mm, a success rate in total plaque and calculus removal in the neighbourhood of 83 per cent could be expected. When pocket depth ranged between 3 and 5 mm the chance of failure increased to 61 per cent. In pockets exceeding 5 mm the failure rate increased to 89 per cent. In most cases, plaque was commonly left in the deepest portion of the pocket. Since remnants of subgingival plaque do not cause inflammatory reactions at a clinical level, the patient and clinician may be led to believe that improvement in the clinical picture has resulted in the disease being arrested when in fact, the progressive loss of attachment may not be impeded at all. Waerhaug has emphasized that treatment procedures which leave fairly deep residual pockets can only realistically be evaluated after about five years at which time any attachment loss can be clinically detected.

Cervalo, et al philosophised that it is unwise to believe deep pockets can be maintained with only scaling and root planing and a plaque control program.¹⁶ A similar study to the Waerhaug study has been conducted by Caffesse and the Michigan group.¹⁷ They found also that pockets less than 3 mm were the easiest sites for scaling and root planing. Pocket depths between 3 and 5 mm were more difficult to scale and pockets deeper than 5 mm were the most difficult. Tooth type did not influence the results.

Stambaugh, Dragoo, et al also made similar findings.¹⁸ Their findings indicated that the average depth that plaque, calculus and altered cementum could be effectively reached was 3.73 mm and in no case over 4 mm. They felt this to be due to several factors: resistance of the pocket wall to be distended enough by the shank of the instrument for proper angulation of the blade to the tooth; the deeper the periodontal pocket the more difficult proper blade angulation and adaptation to the tooth due to tissue contour and root morphology. Instrumentation time in this study included 39 minutes for a maxillary posterior tooth and 25 minutes for a mandibular posterior tooth. It appears that the visualization provided by flap techniques would provide

a more predictable removal of subgingival plaque and calculus as well as permitting odontoplasty of non-maintainable areas and enabling access into root flutings, furcations and the like. This is not to rule out the possible development of improved instruments for negotiating root surfaces which in the future may lead to better results than currently obtained.

At this point, a compromise plan may be indicated for those patients who should continue onto periodontal corrective therapy but for reasons of health, economics or other considerations cannot do so.⁹ When this occurs the dental hygienist can monitor the patient's periodontal condition while providing dental hygiene care on a regular basis. To be effective the dental hygienist must have control over appointment length and dental hygiene treatment planning. Each patient is an individual with individual needs. The one-half hour 'scale and prophylaxis' is totally inadequate. Thorough root planing and curettage are highly developed skills that take time to perform. According to several studies^{13,20,21} this non-surgical approach constitutes effective treatment. The dental hygienist receives extensive education in preventive periodontics and is capable of carrying out non-surgical treatment modalities.

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B. Second Phase

Generally the second phase of periodontal treatment is directed towards surgical correction of the remaining tissue defects in an attempt to enhance bacterial plaque control effectiveness and to restore destroyed tissues whenever possible.⁹ Bissada, et al compared the effectiveness of Keyes' method of oral hygiene on periodontitis treated with and without surgery.²¹ Their findings indicated that the Keyes' method of periodontal therapy was not significantly different from the results obtained when conventional oral hygiene procedures were used, according to clinical and bacteriologic criteria. Patients treated surgically had significantly better periodontal health than those treated non-surgically as indicated by the same clinical and bacteriologic criteria. It must be emphasized that surgical therapy merely corrects the defect so that plaque control by the patient and maintenance by the dental team is easier and more effective.⁹ If the defects cannot be corrected by surgery a compromise maintenance program is indicated. Although the treatment rendered for compromise periodontal maintenance therapy is equal to or more extensive than that for maintenance therapy after surgery. . . the results are unpredictable.

C. Third Phase

The third or maintenance phase brings the patient full circle. No longer is the dental team treating the disease; the disease has been arrested and the patient is in a state of health. The goal of periodontal maintenance is simply to maintain that healthy state. Implementation of the maintenance program forms an important part of the hygienist's duties. Standardized charting, probing and indexing accompanied by complete prophylaxis and possible microscopic evaluation of pocket scrapings is done at each visit. The periodontal status is re-assessed and compared with baseline records. If adverse changes are noted, appropriate corrective action must be taken. Baseline data taken from the initial visit is compared at the post-treatment evaluation.^{9,10} Three month recalls have been shown to be appropriate for assessing and arresting further disease processes.²² The hygienist is in the position of attending recalls and noting relevant data. All members of the dental team should be calibrated to ensure that probe measurements and plaque/gingival indices are consistent and relevant.^{9,10} Perhaps the most difficult aspect of any therapy is patient compliance. The dental hygienist frequently spends longer periods of time with the patient during dental hygiene care than the dentist does with periodontal care. Consequently, the hygienist is in a pivotal position to ensure

patient compliance. Dental hygienists in Canada spend an estimated 49 per cent of their time in periodontics, excluding oral hygiene instruction, whereas general dentists are estimated to only spend 3 per cent of their time in this area.²³

CONCLUSION

As dentistry changes its focus from restorative to periodontal care, the logical partner in this move is the dental hygienist. Hygienists are well educated in periodontics and have been successfully trained in expanded periodontal roles. Dentists are no longer the sole providers of dental care as physicians are no longer the sole providers of medical care. Dental hygienists "should be given an increased role in the control of periodontal disease in both the public as well as the private sector."²⁴

The challenge is clear. Hopefully, the dental hygienist, dentist and periodontist will address the problem of periodontal disease in an atmosphere of teamwork. As generalists increase their expertise in the periodontal field (particularly in the treatment of slight-moderate cases) there should be a spin off effect of referring more complex cases to the periodontal specialist. While the incidence of periodontal disease is high, the relative incidence of referral to periodontal specialists is low. This suggests that many people are not receiving the necessary diagnosis and treatment measures. As the profession directs more attention to the periodontal health of the general population, this should create an increased awareness of the importance of periodontal therapy for the benefit of all.

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Specialty Features

HOME SWEET HOME PIGEON RACING

INTRODUCTION

Dr. John C. Steel, a dental practitioner in Regina, Saskatchewan, has collected many trophies over the years, and not for producing perfect amalgams. Instead, Dr. Steel's trophy room is dedicated to his flock of homing pigeons, some of which have won races of 500 miles.

His interest in pigeons began in his teens, when he had several as pets, but he did not get involved in racing pigeons until 1975 in Edmonton. Now a member of the Regina Racing Pigeon Club, Dr. Steel currently has a brood of about 20 birds, in various stages of training. Figure 1 shows the pigeon loft in Lumsden Saskatchewan, nicknamed "The Steel Trap", in which Dr. Steel hatches and houses his homing pigeons.

The following account of the sport of pigeon racing and of Dr. Steel's hobby was written exclusively for the Journal, by Dr. Steel. It explains some of the history of the sport and some interesting details about racing pigeons.

"Pigeon racing has been a sport and livelihood in Europe for hundreds of years. The sport is relatively new to North America, but is expanding rapidly. The Regina Racing Pigeon Club has been active for more than 40 years, and some of the senior members have raced for 30 years.

Breeding and Training

Pigeons are bred for intelligence, homing ability, speed, and endurance. Novices usually obtain eggs or young birds from



Figure 1

established lofts, or breeding stock can be obtained; but it is difficult to break older, experienced racers to a new loft.

Each club member has a home loft to house his racers. The loft must conform to city building codes, and must be dry, well-ventilated, and well-lighted. Usually, it is divided into sections for breeders, racers, and young birds.

There are several theories regarding the homing ability of racing pigeons. The sun arc navigational theory has some merit, but pigeons can also home on cloudy, rainy or

foggy days. Other propose that pigeons home using the earth's magnetic grid. Science has proved some of the theories to be partially correct, but the exact mechanism still remains unknown.

Young pigeons, once familiar with their home loft and surrounding area, are trained to home from progressively longer distances, up to about 30 miles. I liberate my young birds, in pairs, at 1, 3, 5, 10, 15 and 30 miles before their racing season begins. Their farthest race point is Brandon, Manitoba, about 225 miles from Regina.

The older, more experienced birds do not need this training, as they have already flown the race schedule, and can home from up to 500 miles or more. Old birds are raced on the "natural system" in the Regina Club; that is, they are eager to return to their home loft and partner, who is incubating eggs or guarding youngsters in the nest.

Racing

When each pigeon is a week old, a seamless metal band is placed upside down on the bird's right leg. The band is numbered, registered with the Canadian Union, and it identifies the bird for life. Each Friday night, when the racers are basketed for the weekend race, a removable rubber band is placed on the other leg. All members start their race clocks simultaneously, and all clocks are sealed. A truck takes the birds to the release point during the night, and all birds are liberated at the same time the next morning. The club knows the distance from the liberation point to the home loft of each member, as calculated by Bowen's Surveys, an airline distance company in Eugene, Oregon. When the racer returns to the loft on race day, the rubber race band is removed, and inserted into the sealed clock. Since the race time and distance are known, the velocity of the racer can be calculated, and the winners determined. Figure 1 shows a Blue Barred Cock, one of my last year's winners.

The Regina Club races from May to August, in an east to west direction, the furthest point being Kenora, Ontario, some 500 miles from Regina. Good racers, on an ideal day, will average 40-50 miles per hour, and can return from Kenora on the same day.

I have raced with the Regina Club for four years and have been fortunate enough to produce several winners the last two years. Figure 3 shows some of the trophies won. This hobby is enjoyed by all members of my family, and has provided many hours of satisfaction for all."



Figure 2



Figure 3

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THE USE OF MARSUPIALIZATION IN RESOLVING A DENTIGEROUS CYSTIC LESION

A CASE PRESENTATION

Gerard L. Lapeer, BA, DDS
Kingston, Ont.

SUMMARY

This is a presentation of the case of a dentigerous cyst which was conservatively resolved, saving the patient from potential mutilating surgery. The practitioner's main interest should always be to deal with each clinical problem using the most appropriate conservative approach possible. In cases of this type, although marsupialization is the treatment of choice, it does not seem to be as widely used as it should be.

SOMMAIRE

Voici le cas d'une patiente souffrant d'un kyste dentigère qui est soignée de façon conservatrice, lui épargnant ainsi une intervention chirurgicale qui aurait pu la mutiler. Le praticien doit toujours avoir à cœur de traiter chaque problème clinique avec la meilleure approche conservatrice possible. Dans les cas du genre en question ici, bien que la marsupialisation soit le traitement indiqué, on ne semble pas y avoir recours aussi souvent qu'il le faudrait.

Mrs. C., a 58-year-old Caucasian, was referred to the Dental Clinic at St. Mary's of the Lake Hospital in Kingston, Ontario, on May 4, 1981, because she was experiencing pressure sensitivity and gingival inflammation in the area of the 37. A periapical radiograph which had been taken by her family dentist revealed a radiolucency at the apex of the 37; however, no distal border of the radiolucency could be deduced on the film. Mrs. C. was in good health, her medical history was inconsequential, and there was no history of family disease.

A clinical examination of the patient revealed no evidence of soft tissue pathology in the oral cavity except for a mild marginal gingivitis in the lower anterior region and a mild inflammation of the buccal gingiva around the 37. There were no palpable lymph nodes nor pathology in the head and neck region. Examination of the temporomandibular joint apparatus revealed normal function. Her posterior teeth were heavily filled with amalgam restorations and the 46 had been extracted. Her teeth were tested for vitality and all registered positive except for the 37.

A panoramic radiograph was taken (Fig. 1). The area of the patient's primary complaint comprised a large radiolucent region measuring 3 cm. by 6 cm., which extended from the anterior of the mesio-buccal root of the 36 up the ramus of the mandible. The radiolucency was well demarcated on the radiograph except in the root area of the 36 where it was more diffuse. The 38 was visible on the inferior border of the angle of the mandible, but the inferior alveolar canal was not evident.

Because of the size of the lesion, a biopsy was performed prior to the formulation of a definite diagnosis. At the patient's request, a local anaesthetic only was used for this procedure. The cystic lesion was first palpated to determine if there was an expansion of bone or if a pulse could be detected, then auscultated to pick up any vascular noises. Both tests proved negative. The patient was given a mandibular block and a buccal block, using 6 cc. 2 per cent mepivacaine HCl with 1:20,000 parts levonordefrin. A small incision was made buccal to the lower left retromolar pad and the mucoperiosteal flap was retracted. The

bone over the lesion was very friable and therefore a 21 gauge 5 cc. syringe was used to aspirate the cystic contents. This produced 3.5 cc. of a beige, watery fluid.

Based on radiographic appearance and the results of palpation, auscultation, aspiration and observation, a tentative diagnosis of dentigerous cyst was made. It must be emphasized that these diagnostic procedures as well as a biopsy are vital in eliminating the possibility of other pathologic lesions such as odontogenic keratocyst, haemangioma, ameloblastoma, etc. It was decided to sacrifice the 37 because of loss of vitality, and to excise a 1 cm. by 1 cm. piece of tissue distal to the 37. The 38 would be retained because of its unfavourable position, which we hoped would improve after the cyst had resolved. The excised tissue and a portion of the cystic lining were submitted for histopathological analysis. Due to the friability of the tissue in the surgical site, suturing the cystic wall to the mucosa was impossible and the opening was left without further surgical intervention. The patient was given an irrigation syringe and was shown how to cleanse the cystic cavity using a 10 per cent saline solution. A course of penicillin V, 300 mg. was prescribed q.i.d. for seven days and 325 mg. acetaminophen with 30 mg. codeine and 15 mg. caffeine was prescribed for postoperative pain.

Histopathology confirmed the diagnosis of dentigerous cyst.

The patient's condition was checked on May 7, 1981 and again on May 27, 1981. She reported no problems and the window to the cystic cavity remained open as hoped. It was decided to have the patient continue flushing the cystic cavity and to maintain

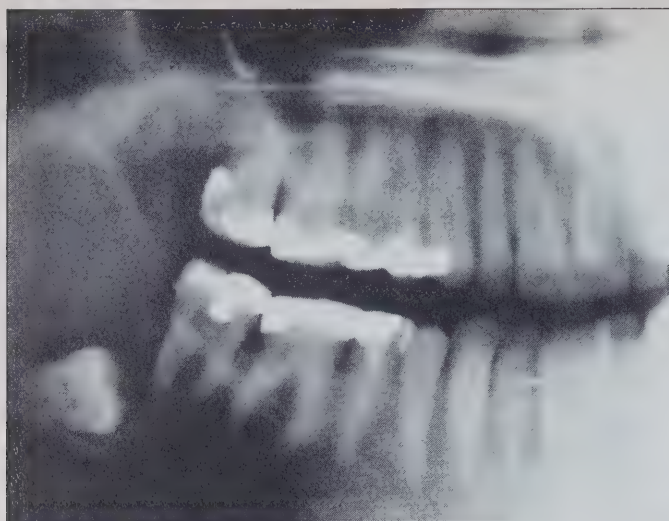


Fig. 1. Panoramic radiograph taken on May 4, 1981, at the initial examination. Note the large cystic lesion. The alveolar canal is not visible.

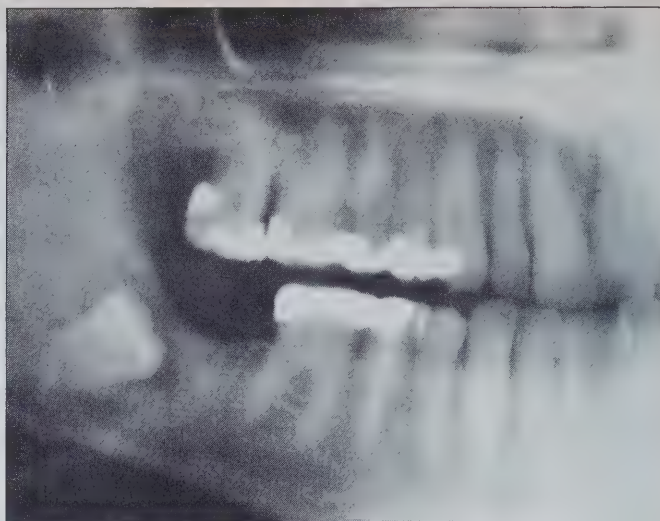


Fig. 2. Panoramic radiograph taken on February 14, 1983. Note that the cystic lesion has resolved and the 38 has erupted. The alveolar canal is visible.

regular periodic radiographic observation of the area. This was continued at six-month intervals until February 1983. On February 14, a panoramic radiograph (Fig. 2) revealed that the lesion had subsided significantly, that the inferior alveolar canal was evident, and that the 38 had erupted from its inferior position. The entrance to the cystic cavity had reduced to a 2 mm. by 2 mm. opening. The decision was made to extract the 38 and to curette the remaining cystic lesion. On February 23, 1983, the 38 was extracted using 8 cc. 2 per cent mepivacaine HCl with 1:20,000 levonordefrin. The cystic cavity was curetted and closure was with 000 silk. The patient was given a prescription for a prophylactic antibiotic — penicillin V., 300 mg., q.i.d. for seven days and an appropriate analgesic was prescribed for postoperative pain. She reported moderate edema and some discomfort postoperatively but no unexpected symptoms occurred. On July 21, a panoramic radiograph revealed no evidence of pathology, total resolution of the cyst and good regeneration of bone.

DISCUSSION

Cystic lesions of the oral cavity are a common occurrence in dental practice. Various treatment modalities are available for dealing with these, depending on the size, type and location of the cyst, the patient's age and medical status. Enucleation, marsupialization, resection of surrounding bone and induction of haemorrhage as in the case of the solitary bone cyst, can all be legitimate; however, it is suggested that the most conservative treatment that circumstances will permit be utilized. In the preceding case, the large dentigerous cyst was reduced by marsupialization before enucleation and removal of the wisdom tooth. By employ-

ing this method, the patient was spared from extensive surgery, avoiding the risk of a general anaesthetic and maintaining normal neurovascular function in the area.

Marsupialization, a treatment modality first introduced by John S. Smith in 1885,¹ is a conservative technique which allows the reduction or elimination of a large cystic lesion by making it an accessory compartment of the oral cavity. When the cyst contents are exposed to the external environment, the hydrostatic pressure of the lesion is reduced, thus eliminating osteoclastic activity at the cyst's periphery and re-establishing osteoblastic activity. The cyst reduces in size and new bone is deposited.² The standard method for marsupialization involves opening the cystic cavity, suturing the cystic lining to the mucoperiosteal flap, instructing the patient in care and cleaning of the site, and fabricating an obturator to maintain the opening and minimize the chance of contamination. The success of the technique depends upon establishing an adequate window to the oral cavity; if the opening is too small the procedure will fail.³ In the preceding case, we have deviated from the classical method in that no obturator was made and we were unable to suture the cystic lining to the external mucosa. Nonetheless, treatment was highly successful.

Several reasons have been advanced to support the theory that marsupialization is an undesirable technique to use when dealing with a large dental cyst. For example, some practitioners say that there is a possibility that the cyst will recur because the membrane has not been enucleated. Archer² replies that this is rare: "If the opening into the cyst cavity was maintained until bone had completely filled in around the capsule, thus gradually obliterating the

cavity and its capsule". The inconvenience to the patient of having a large opening in the buccal or labial alveolus has also been cited. The author's experience has been that this is of minimal importance, since most patients incorporate irrigation of the cavity into a daily oral hygiene routine and otherwise, reportedly, pay it little attention. There may be a remote chance that an ameloblastoma or epidermoid carcinoma will develop in the cystic membrane. However, Archer² states that a survey of the Diplomates of the American Board of Oral Pathology produced only two oral surgeons who disagreed with the use of marsupialization of dentigerous and other cysts. Close surveillance of the patient over a considerable time ensures the immediate identification of more serious complications.

Once a diagnosis has been made, and the risks of various treatment modalities have been calculated, and if marsupialization is one of the appropriate treatment possibilities for the type of cyst under consideration, then marsupialization may be chosen as an effective and conservative therapeutic avenue.

I would like to thank Jenepher Hemsted and Linda Brown for their assistance in the editing and typing of this manuscript.

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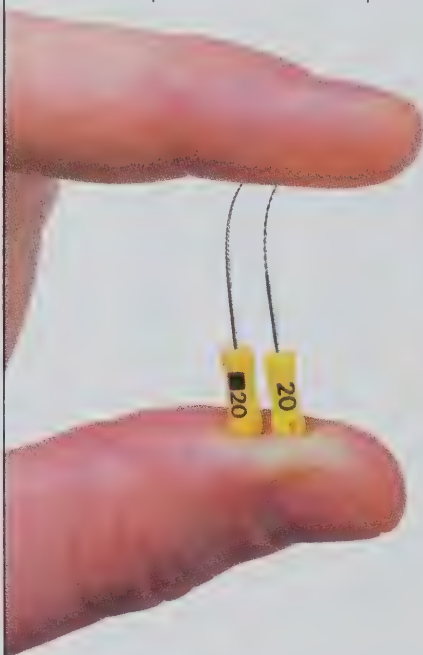
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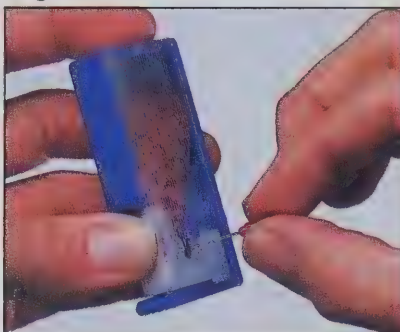
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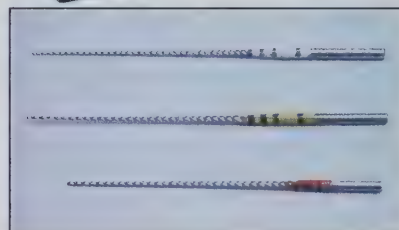
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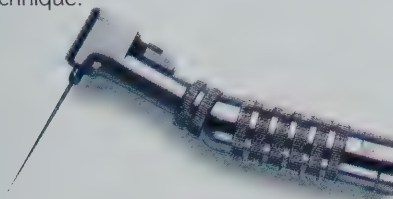
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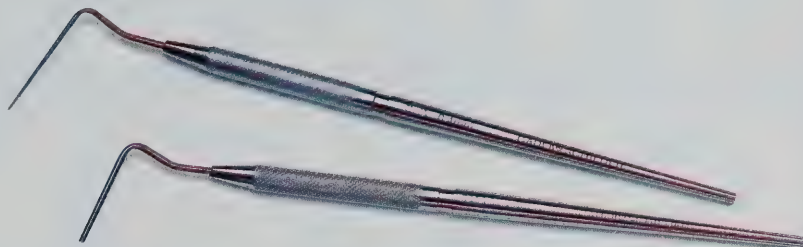


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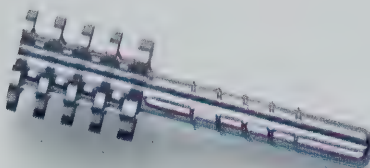


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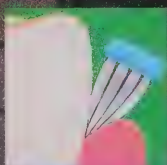
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NEVOID BASAL CELL CARCINOMA

A CASE REPORT

A.E. Swanson, DDS, MS, FRCD(C)
Vancouver

ABSTRACT

This report describes a young female patient presenting with some features of the nevoid basal cell carcinoma syndrome at a time when the entity was just being recognized. It follows her through the evolution of other components of the syndrome while reflecting the erudite prediction of one of the original researchers in this clinical entity. The metamorphosis of labelling of the cystic character from primordial to keratocyst is identified while recognizing the part played by the oral pathologist in this change. Finally, the fact that her two children are now manifesting some of the stigmata of the syndrome lends support to the Mendelian dominant inheritance feature of this disease.

DISCUSSION

Ever since Binkley and Johnson¹ first described the disease entity which became popularly known as the basal cell nevus syndrome, clinicians have been fascinated by this peculiar aggregation of clinical signs. The subsequent thorough review by Gorlin and his co-workers²⁻³ did much to clarify the components of the syndrome, the inheritance pattern involved and the variations on the theme. This case is presented because it surfaced in the early years of recognition of this syndrome before all features had manifested themselves in the



Fig. 1. The mother at age 15. Note widely spaced eyes, broad nasal bridge, minor mandibular prognathism. Multiple facial nevi are evident.

patient, and because of the astute prognostication by Dr. Robert Gorlin regarding the expected natural history for this patient.

CASE REPORT

This case involved a young female who developed several odontogenic cysts in the maxilla and mandible. This fact, plus a propensity for recurrence, prompted the

author to submit for publication an article entitled "An Unusual Propensity for Odontogenic Cyst Formation".⁴ A few years later, a communication was received from Dr. Gorlin, stating that he was in the midst of reviewing a syndrome of which multiple jaw cyst formation formed a part and requesting the history and evidence available on this patient. The purpose of this request was to determine if the patient would fulfill the criteria for inclusion in his study. Because she had been thoroughly documented by other health practitioners, this was a simple request to satisfy, and the appropriate documentation was forwarded to Dr. Gorlin, who later indicated that this patient would qualify for ultimate inclusion within the parameters of the syndrome, even though she had not yet manifested all of the features. He predicted that as she grew older, the more sinister characteristics of the disease (i.e., basal cell carcinoma arising from nevi) would manifest themselves. The purpose of this case report is to relate how accurate Dr. Gorlin was in his prediction, as well as to bring the status of this most interesting case up to date.

A summary review of the case is as follows. In April 1954, the patient, then 8 years of age, was referred to an endocrinologist by the school physician because of his impression that her head was abnormally large. A thorough medical investigation at that time did not reveal any dramatic

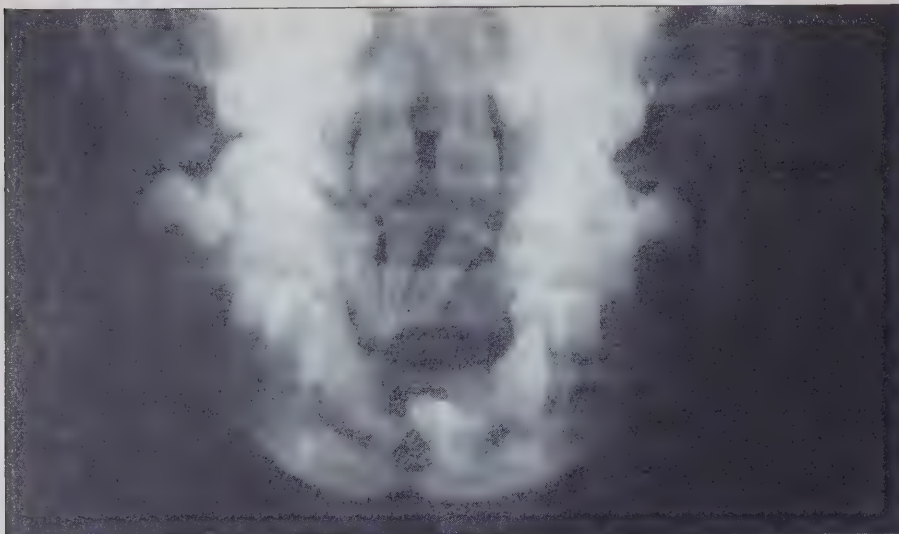


Fig. 2. P.A. radiographic view of cyst in mandibular symphysis region. Patient is 8 years old.



Fig. 3. Multiloculated osteolytic lesions surrounding crowns of unerupted maxillary canines. Patient is now 13 years of age.

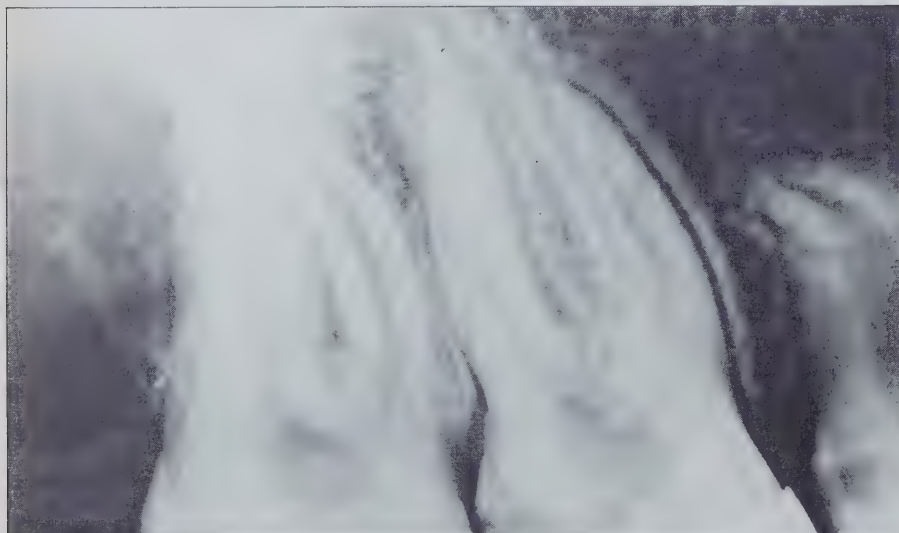


Fig. 4. Well circumscribed radiolucency in left maxillary tuberosity representing recurrence of "primordial" cyst.

findings. Pertinent to the case, however, were the following physical findings: 1) the head was prominent, with widely spaced eyes, a broad nasal bridge, and some prominence of the brow (Fig. 1); 2) a thoracic deformity consisting of a prominence over the left anterior chest region; 3) a cyst was noted "in the left cheekbone" on radiologic examination, associated with an unerupted tooth; 4) she appeared very large for her age; and 5) a horizontal nystagmus was present. The parents, reliable historians, stated that there was no history of familial disease of which they were aware. The patient, a product of a full-term pregnancy terminating in a normal delivery, weighed 9 lbs 1 oz at birth. The mother and father, 36 and 35 years of age, respectively, when the patient was born, had one other child, a female. This sibling was two years older and, to this day, presents no evidence of the syndrome.

The consultant oral surgeon on the case at that time determined that the "cyst in the left cheekbone" was, in fact, located in the right anterior portion of the mandible. To him, it presented as a typical dentigerous cyst involving a normally developed but unerupted permanent cuspid tooth (Fig. 2). He enucleated the cyst in April 1954, along with the lateral incisor and cuspid teeth. The microscopic report stated that there was "a well-defined lining of a squamous epithelium" in some areas, which, in others, "was lost by erosion with underlying lymphocytic infiltration". The final diagnosis was "dentigerous cyst of mandible".

Healing was uneventful following the mandibular surgery but the patient was lost to follow-up until March 1958, when she was presented to the same oral surgeon by her parents because of a possible recurrence of the lesion in the symphysis region of the mandible. Indeed, radiographs at that time confirmed the presence of an osteolytic lesion resembling a cyst in the original operative site. Accordingly, in April 1958, this apparent recurrence was enucleated. The microscopic description of that tissue read, in part, "a cyst wall . . . lined by a uniform appearing stratified squamous epithelium . . . and there is a scattering of lymphocytes. Final diagnosis: radicular cyst."

In 1959 the patient, now 13 years of age, had symptoms in her upper jaw which prompted further consultation. This was the writer's first encounter with the patient. A full-mouth radiographic survey revealed well circumscribed osteolytic lesions in both maxillary tuberosities with no evidence whatsoever of third molar formation. Furthermore, large osteolytic lesions surrounded both maxillary canines, neither of which had erupted (Fig. 3). A clinical diagnosis of bilateral primordial cysts of the

maxillary tuberosities and bilateral dentigerous cysts involving the maxillary cuspids was made. The patient was surgically treated later that year. The tuberosity lesions were found to be lined clinically by a very thin, friable tissue and because complete enucleation was thought to be impossible, the lesions were marsupialized and packed open. The dentigerous cyst involving the canine on the right was enucleated but the one on the left was found to be too large for enucleation, extending as it did up to the floor of the orbit and posteriorly to the primordial cyst in the left tuberosity. The decision was made to join this cavity with the tuberosity cavity and to pack the entire cavity open — in effect, a marsupialization.

The microscopic report of the maxillary lesions, including the clinically designated primordial cysts, indicated that the lining consisted of "a rather compressed-appearing but uniform, squamous epithelium and probably this represents the wall of a cyst". Final diagnosis: "probable radicular cysts of the right and left maxillae". Dressing changes and irrigations comprised the follow-up treatment, and postoperative healing was uneventful. The defects involuted by second intention repair.

In February 1960, about one year following the original surgery for the maxillary cysts, follow-up radiographs revealed good bony regeneration, except in the left maxillary tuberosity region where there was definite evidence of a well circumscribed radiolucency (Fig. 4). This suggested a recurrence of the primordial cyst and, accordingly, it was marsupialized later that same month. The general pathologist reported the excised tissue as follows: "Sections show a cyst wall comprised of a fairly compact but not particularly thick fibrous connective tissue lined by a single layer of quite compressed-appearing cuboidal squamous epithelium". A stent was utilized in the maxilla to keep the exteriorization orifice patent.

By May 1960, the surgical defect was filling in satisfactorily and the appliance was dispensed with. At a follow-up visit in February 1961, another full-mouth radiographic survey was made and this revealed all operative sites to be healing well with good bony regeneration throughout.

By 1961, at the age of 15, the patient was 6 feet 1 inch in height and had not yet attained the menarche. Although not excelling at school, she made average progress in her studies. Despite the unusual physical features which she presented as a child and adolescent, thorough investigation by a pediatrician and endocrinologist had revealed no significant systemic or organic abnormalities.

By the age of 29 (1975) the patient had

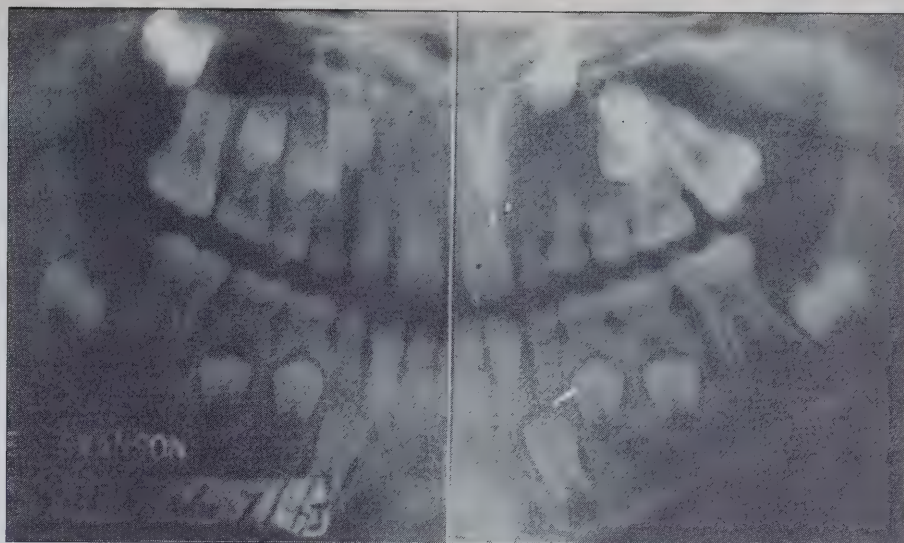


Fig. 5. Large dentigerous cyst in right maxilla. The lesion is displacing 12, 13, 14, 15. Clinical swelling was evident in the right canine fossa, son, age 8.



Fig. 6. Note remarkable displacement of maxillary right second molar due to dentigerous cyst associated with it, son, age 9.



Fig. 7. Dentigerous cysts lying occlusal to both mandibular second permanent molars and impeding their eruption, son, age 9.

married and had given birth to two children, a boy and a girl. In the interval since our previous visit she had had three basal cell carcinomata removed from her face and lip, these excisions having occurred over the previous two years. Further, her father had developed carcinoma of the lung four years previously and, despite a pneumonectomy, had succumbed to metastasis of his disease.

The patient's first child was presented to the writer at the age of 8 because of failure of the maxillary right lateral incisor to erupt in concert with its counterpart. Clinical swelling was evident in the right canine fossa. Radiographic examination revealed a cyst which was displacing (teeth) 12, 13, 14 and 15 (Fig. 5). This cyst was enucleated in August 1978.

Follow-up of the patient continued, and in March 1979 he presented with the chief

complaint of swelling and drainage from the left maxillary tuberosity region. A panoramic radiograph revealed bilateral radiolucencies in the posterior maxilla, suggesting odontogenic cysts involving the second molars. Tooth #17 was significantly displaced by the adjacent cystic lesion (Fig. 6). Later that month, both cysts associated with the maxillary second molars were marsupialized in an attempt to preserve these permanent teeth. These wounds were packed open and the usual sequence of dressing changes and irrigation ensued with uneventful healing.

In June 1979, the patient was seen because of the complaint of a "salty taste" and "spongy gum" in the mandibular left second molar site. Panoramic radiography revealed what appeared to be bilateral "eruption" cysts lying occlusal to the man-

dibular second permanent molars (Fig. 7). The cysts were marsupialized and packed open on July 4, 1979. A routine follow-up visit in November 1979 revealed normal healing.

In August 1980, the patient was once again examined because of a radiolucency over the crown of the mandibular left first bicuspid. The primary mandibular left cuspid and first molar were extracted, the cyst associated with the mandibular permanent left cuspid and first bicuspid was marsupialized and the cyst in the right maxillary quadrant was also marsupialized at the same time.

A follow-up panoramic radiograph in January 1983 revealed the beneficial influence of the interceptive orthodontic therapy over the period of the previous three years (Fig. 8). Nonetheless, careful scrutiny of that film revealed a new cystic lesion occupying the space between tooth #27 and 28, impeding the eruption of the developing #28. In December 1983, marsupialization of cystic lesions in both maxillary tuberosities were carried out. The histology indicated keratocyst in both lesions.

Meanwhile, the patient's sister, who was two years younger, also was manifesting features of the syndrome. She was first seen in January 1979, at the age of 6 years, regarding a cystic lesion involving the unerupted permanent mandibular left lateral and canine teeth. A congenital absence of the maxillary right primary lateral incisor and both maxillary permanent lateral incisors were also observed. Clinically, there was a lingual swelling adjacent to the mandibular left primary canine. In February 1979, the cystic lesion was marsupialized. The biopsy report read "tissue consistent with dentigerous cyst." The wound was packed open and healing progressed uneventfully.

A regular follow-up visit in November 1980 revealed the chief complaint of a "soft swelling" in the right maxillary tuberosity region which had been noticed for a month. Although she had not been aware of any drainage or taste from the region, it did feel soft and spongy to the patient. A panoramic radiograph at this time revealed a cystic lesion lying occlusal to the developing maxillary right permanent second molar and impeding its eruption (Fig. 9). In January 1981, a marsupialization procedure was performed. The biopsy report at this time read, in part, "cystic structure lined by non-dysplastic squamous epithelium." Healing was uneventful.

She next presented in January 1982 with a chief complaint of a "spongy" feeling in the gingiva overlying the mandibular left permanent second molar. A panoramic radiograph taken at this time did not reveal

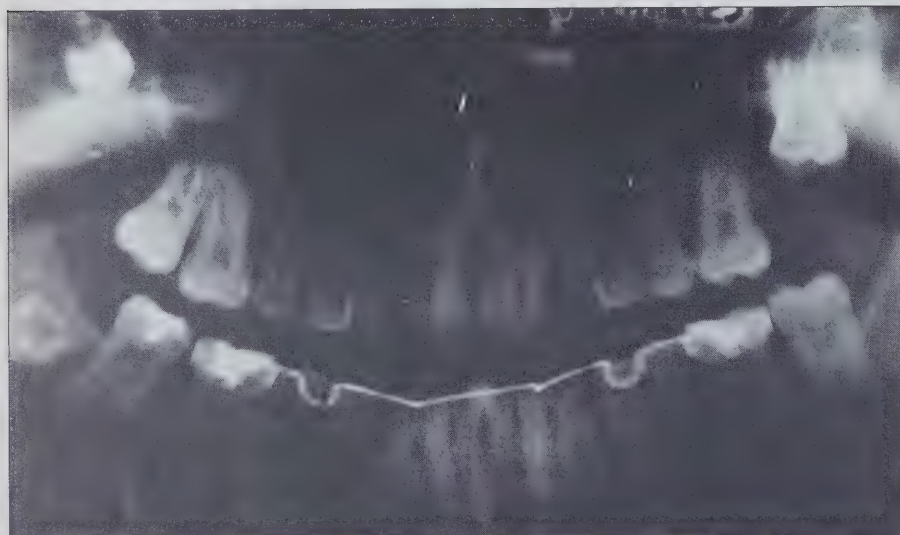


Fig. 8. Patient aged 13, showing good arch alignment with all but the maxillary right second molar in good position. Orthodontic retainer is in place, son, age 13.

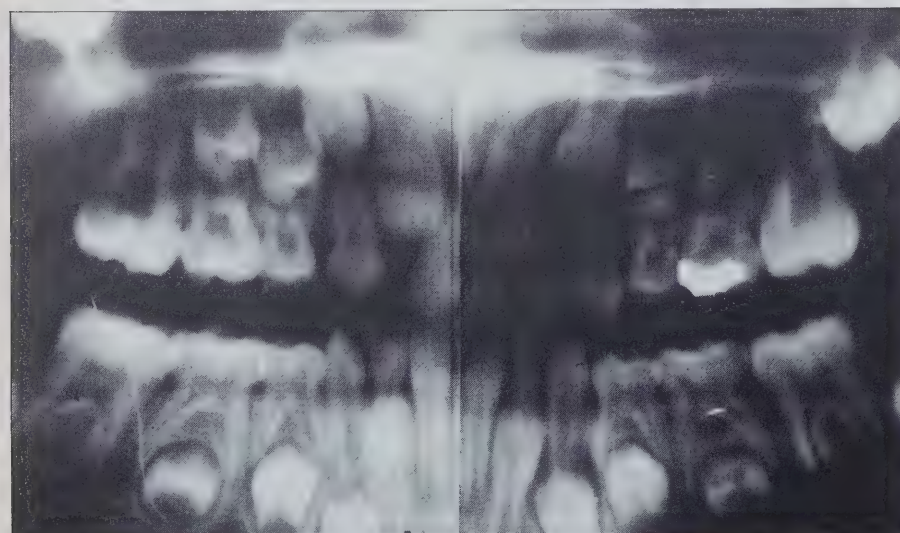


Fig. 9. Daughter, aged 7, showing displacement of maxillary right permanent second molar by cystic structure histologically identified as "consistent with dentigerous cyst".

any abnormality in this region but there was a suggestion of cystic degeneration occurring in the follicle pertaining to the mandibular left permanent canine. A decision was made to monitor the situation.

In March 1983, the patient was examined because of a radiolucency in the pericoronal region of the developing maxillary left first bicuspid. This lesion appeared to be impeding the exfoliation process occurring in relation to the primary first molar lying occlusal to it. In April 1983, the primary first molar in the left maxilla was extracted and the cyst lying occlusal to the succedaneous first bicuspid was enucleated. The pathology report read as follows:

Microscopic: "The fragment of tissue is a collapsed cystic structure lined by non-dysplastic squamous epithelium with some retained keratin. There is no significant inflammatory reaction. The appearance is very consistent with the diagnosis of dentigerous cyst."

Chest and lumbosacral spine radiographs revealed the following: 1) spina bifida occulta defect in the neural arch of C7, 2) fused right second and third ribs anteriorly, and 3) a bifid and broadened anterior end of the left fourth rib.

The male sibling's ribs and lumbar spine radiographs revealed "splaying of the bodies of the right third, fourth, fifth and sixth ribs, and bifid anterior left third and fourth ribs. In addition, there was a spina bifida occulta defect in the posterior neural arch of C7." To date, the mother has had over 40 basal cell carcinomata excised from various sites.

Examination of the family tree reveals the following information. The maternal grandmother of the siblings is still living and enjoying good health at the age of 74. Her mother died of heart disease, having had 11 siblings, none of whom developed cancer. Her father lived to a "ripe old age" and never developed a malignancy. He had six siblings, none of whom developed cancer. For the paternal grandfather the history was

different. His mother died of cancer in the early 1950s, and his brother died of cancer of the lungs at age 20. Furthermore, as indicated earlier, he himself developed carcinoma of the lung in 1971 and, despite a pneumonectomy, died of metastatic disease.

In 1964, Gorlin et al. reported over 150 such cases based on a thorough review of the literature. They stated: "A genetic pattern is suggested by the not-infrequent occurrence of a forme fruste in parent, sibling, child or near relative." Gorlin and Goltz suggested that the inheritance was autosomal dominant with poor penetrance.

The primary patient in this narrative — the mother — has understandably been distraught over her plight. She suffers from a guilt complex over the fact that her children have inherited the disease. Indeed, she has stated that had she been the recipient of genetic counselling 20 years ago and known the characteristics of the disease at that time, she would not have had any children. She is under continuing psychotherapy and medication and her marriage has failed.

DISCUSSION

The chronological time frame of this case begins with the era of the primordial cyst, antecedent to the keratocyst; it betrays the distinction between general pathologists and oral pathologists interpreting oral tissues; it relates the sad tale of this disease in one family; it documents the value of regular monitoring and conservative surgery in the management of the cystic and malignant components of the disease; and, finally, it identifies the merit of various disciplines in dentistry combining their talents and skills in treatment planning difficult cases. The propensity for the keratocyst to recur is highly recognizable in this report. It also suggests that, in terms of this particular characteristic (i.e., recurrence), it matters not whether such a cyst is an isolated singular lesion or forms part of a complex syndrome.

SUMMARY

A case report on nevoid basal cell carcinoma syndrome involving a mother and her two children is presented. The story begins in the era of the early reporting of the syndrome when the mother was 8 years old. It takes us through her early adult years, marriage and the bearing of two children who now manifest some of the cardinal signs of the disease. The predicted occurrence of the carcinomata in the basal cell nevi and their continuing appearance in the mother is narrated. In this context, the ominous prognostication by Dr. Gorlin was, unfortunately, remarkably accurate. Over 40 such carcinomata have thus far been excised in this patient. The stigmata have obeyed the Mendelian dominant mode of inheritance. This case is reported for purposes of adding a report on the syndrome to the literature and, particularly, since the patient has been followed up over a 25-year span.

The author wishes to acknowledge the co-operation of Dr. William Sproule, orthodontist, and Dr. David Kennedy, pediatric dentist, for permitting him to use radiographs pertaining to the case subject's two children.

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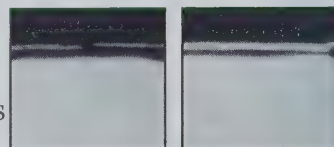
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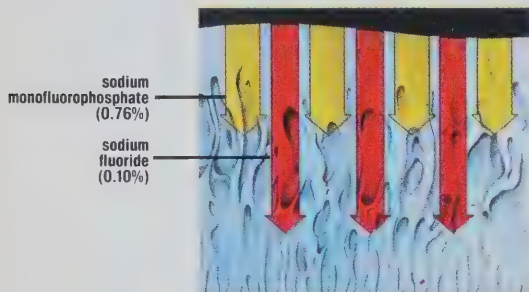
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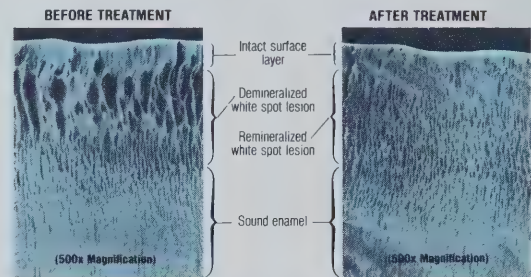
Why these two fluorides remineralize more completely.

It has been postulated that fluorides reach white spot lesions by penetrating enamel through the interprismatic spaces. Sodium monofluorophosphate, being a larger molecule, reacts with enamel primarily at the surface of a white spot lesion. Sodium fluoride, a smaller molecule, penetrates deeper into the lesion.



Working at different levels, the two fluorides may complement each other, enhancing remineralization over a greater area of the lesion than a single fluoride* alone.

This complementary action means more fluoride is available to enhance remineralization over a greater depth of the lesion than is provided by either fluoride alone.^(5,6)



This more complete remineralization has been demonstrated in laboratory studies,⁽⁷⁾ and can be seen in the photomicrographs above.

Clinical studies show nearly double the cavity reduction.

Colgate with this two fluoride concept was tested in a three year clinical study.⁽⁸⁾ The results—Colgate's two fluoride formula provided 27.0% reduction in new caries versus 13.8% for the single fluoride positive control* (DMFT).

Conclusion.

Colgate's two fluoride formula provides superior cavity protection to a single fluoride formula*: *Only Today's Colgate has a two fluoride formula.*

When you recommend Colgate you're recommending an innovative product—offering advanced and clinically tested cavity protection.

*Sodium monofluorophosphate (0.76%)

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* Colgate Toothpaste contains sodium monofluorophosphate and sodium fluoride which are, in our opinion, effective decay preventive agents and are of significant value when used in a conscientiously applied program of oral hygiene and regular professional care.

PARTNERS IN PREVENTIVE DENTISTRY.

THE FUTURE NEED FOR DENTAL TREATMENT IN CANADA

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Based on a presentation at the Canadian Dental Association National Conference on Dental Caries Decline: Implications for Private Practice and Public Programs, Montréal, February 1, 1985.

INTRODUCTION:

The implication of the changes in the epidemiology of dental caries and the periodontal diseases on the practice of dentistry has become a topic of increasing interest.¹⁻⁵ To assist in determining the impact of disease prevalence on the clinical practice of dentistry, dental expenditures and dental manpower requirements, several groups of investigators have found need-based modeling a useful approach.⁶⁻¹³ In addition, this need-based procedure has been applied to estimate the current US national dental market conditions regarding the periodontal diseases¹⁴ as well as project the US dental caries market to the year 2000.¹⁵ A major finding of these national studies is the influence on the dental market of demographics, specifically the aging of the population.

In Canada, the impact of the changing disease patterns coupled with the aging demographics occurring throughout the developed world has not been explored. Therefore, the purpose of this analysis is to estimate and project the Canadian dental market for the most common oral diseases, caries and the periodontal diseases, using a need-based model.

The comparison of the quantity of dental treatment needs with the quantity of treatment provided can yield a general estimate of the total Canadian potential dental market. Need for dental services is considered in this paper as the treatment need

detected on oral examination by a dental professional regardless of whether the patient demands care. If the patient with dental treatment need seeks and receives care, this effective demand can be viewed as met need. The sum of adding the quantity of unmet need with the quantity of met need is considered the total potential market for treatment. Therefore, comparing unmet need with met need can provide the desired estimate of the quantity of services required by a population beyond the quantity already provided by the dental profession.

To project the future dental market, both the quantity of unmet and met treatment need must be forecast based on past secular trends. Because of the lack of Canadian information on secular trends for the entire population of all ages, the analysis presented here must assume that the prevalence of disease over time will be changed similar to the secular changes in the U.S. Thus, a comparison of the Canadian oral health status with the American data will be instructive.

To determine what this broader epidemiologic view implies for the dental profession, the paper will 1) briefly review the reports that document the trend in oral health status, 2) compare the Canadian data with US epidemiologic data for all age groups, 3) project the at-risk Canadian dentate population and disease trends to the 21st century, 4) calculate the hours of dental treatment need for each age group, 5) compare these need-for-treatment estimates with the effective economic demand for services that is experienced by dental practitioners, and thereby determine the total potential market for operative dentistry services in Canada, and 6) discuss the impact of these trends on the practice of dentistry and the Canadian dental profession.

Secular Oral Health Trends:

The secular changes that have occurred in the prevalence of dental diseases within the past decade have been dynamic. The most dramatic perhaps is the reported decline in caries that has been identified in many developed countries among children or young adults¹⁶⁻²⁹ including both the US^{30,31} and Canada.^{32,33} As illustrated in **Figure 1**, however, a similar reduction in coronal decay has not been documented among adults over age 35.¹⁵

Trends in the prevalence of the periodontal diseases have not been as consistent.³⁴ For example, in the US the periodontal index scores among adults showed no change between the 1960-62 and 1971-74 national surveys. However, the classification of US adults into broad disease categories showed that the proportion of adults with gingivitis (disease with no pockets) decreased significantly between the two surveys. A concomitant decline was also observed in mean oral hygiene scores among US adults. In contrast, while the proportion of adults with periodontal pockets decreased slightly among those younger than age 35, in persons older than age 35 there was either no change or a slight increase (**Table 1**).

Secular trends in the prevalence of edentulism (not shown) have shown a substantial decline in the US among all adult age groups, both genders and races, especially among the elderly.^{34,35} The decline among the white elderly has been substantiated at the regional level as well.^{36,37}

Canadian Dental Health:

In Canada, data on disease prevalence over time for the entire country is lacking, especially among the adult population. Regional data among children, however, is

prolific. For example, among Canadian children, a reduction of 44 percent in mean DMFT scores between 1958-60 and 1980 has been reported in the province of British Columbia,^{32,33} as well as in several of the larger cities of Canada.³⁸ As illustrated in **Table 2**, the regional variations^{3,39-42} and urban/rural differentials⁴³ are striking. In addition, the Canadian scores, with the exception of young children aged 5, are generally higher than the US mean DMFT scores observed in the survey conducted by the NIDR in 1979-80.³⁰

Among Canadian adults the secular trends in dental caries have not been reported. In **Table 3** are the mean DMFT scores for Canadian adults by age and year. Interestingly, the mean score of 15.6 reported for the 1970-72 survey⁴⁴ is just slightly higher than the national US score of 15.4 recorded in 1971-74.⁴⁵ Similarly, data recorded during the WHO-sponsored International Collaborative Study of Oral Health⁴⁶ showed, among adults aged 35-44, a slightly higher score of 16.5 in Ontario, as compared with a mean of 15.8 in Baltimore.⁴² The comparison between Ontario and Baltimore should be made cautiously; neither geographic entity is representative of their respective countries.

The mean periodontal index scores and oral hygiene scores among Canadian adults ages 35-44 living in Ontario are presented in **Table 4**. These data were collected as part

of the WHO collaborative study and are not representative of the entire Canadian adult population. Thus, as with the DMFT score, the comparison of the Ontario PI scores with the Baltimore PI scores (or even the 1971-74 NCHS scores) is interesting because of the similar data collection methods, but in general are not indicative of each country's dental health.

Figure 2 illustrates the age- and gender-specific rates of edentulism in Canada.⁴⁴ As in the United States, the percentage of adults who are edentulous is greater in females than males and increases with age. In 1970-72, the overall proportion of edentulous adults over age 19 in the Canadian population was 26.6 per cent among women and 20.3 per cent among men. Rates for both genders are much higher than those reported in the US for adults aged 18-74.⁴⁷ This large difference could be explained by the absence of the elderly over age 75 years in the US data, whereas they are included in the Canadian. However, an age-specific comparison with the US³⁴ shows that the Canadian rates are generally lower in every age category (not shown).

Identifying the At-Risk Population:

From our investigations, the single most influential factor on future dental treatment need that is currently being ignored in the debate of future disease trends is the large

increase in the number of middle-aged and older adults who will be present and have teeth over the next 20 to 30 years.^{15,35} As shown in **Figure 3**, from 1976 to the year 2001 the Canadian population is projected to increase by nearly one-third from some 23 million to 30.7 million persons with the largest increase occurring in adults over age 35 years.⁴⁸

If we assume that the proportion of Canadian adults who are edentulous remains unchanged in the year 2001, the projected increase in the number of dentulous adults will be expected to increase by 6.1 million more persons, as illustrated in **Figure 4**. This projected increase in the number of dentulous Canadian adults primarily in those persons over age 35 will occur even if the Canadian edentulous rates remain at the level observed in 1970-72 (not shown).⁴⁴ Another assumption, however, that would be more consistent with US trends is the possibility that the proportion of dentulous persons in Canada can be expected to increase by the year 2001 at the rate equal to that observed in the US. **Figure 5** shows the impact of such a decrease in edentulism combined with Canada's changing demographics; in the 25 year time period between 1976 and 2001, the number of dentulous adults will increase dramatically. Approximately 7.2 million more persons of all ages will be at risk, with the largest proportion in the age group over 35 years.

This increase in the number of older Canadians coupled with a decrease in edentulism will increase substantially the number of adults at risk to dental diseases. The gain in the number of dentulous adults already has been postulated to increase the risk of advanced periodontal disease in U.S. adults, especially the elderly,^{34,35} as well as increase the risk for needing operative dentistry services in later life.¹⁵

Determining Unmet Treatment Needs:

To determine the future impact that the changing demographics and the changes in the epidemiology of dental diseases will have on Canadian dental services, the unmet need for services must be assessed. A method that has been previously described¹⁵ for determining the hours of unmet treatment need is to translate the prevalence of disease as measured by traditional dental disease indices into service hours needed.^{14,15}

Caries: The formula in **Figure 6** can be used to perform the conversion of the DMFT scores into hours of unmet need.¹⁴ Hours of treatment need (T) are calculated as a function of the Canadian dentulous population at risk, the disease prevalence and the

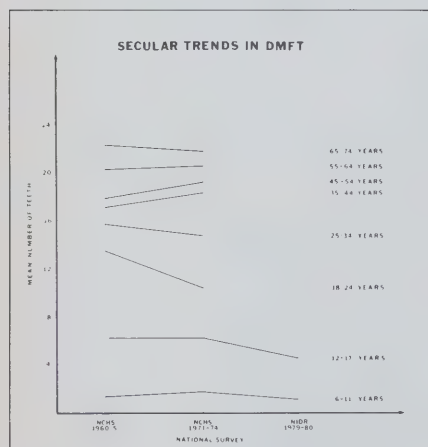


Figure 1 Secular Trends in DMFT in the US

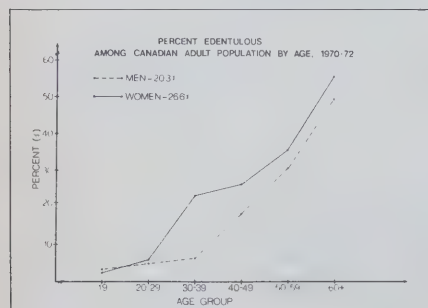


Figure 2

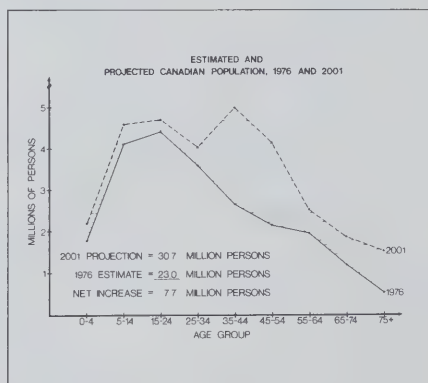


Figure 3

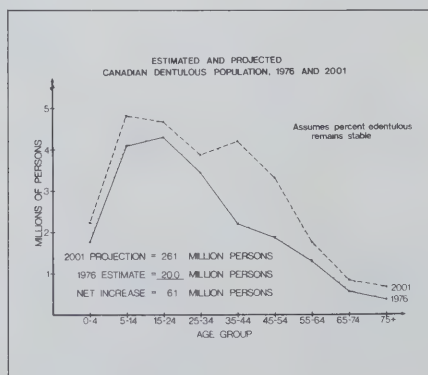


Figure 4

time required to treat the carious lesion or replace an existing restoration. The treatment time of 0.5 hours per service used here is the average mean restorative treatment time recorded during a national study of general practitioners carried out by the Research Triangle Institute (RTI) in 1976-77.⁴⁹ In addition, after reviewing the literature on restoration failures,^{1,50} a replacement rate of one-tenth (0.1) was chosen,⁵¹ estimating that on average operative dentistry restorations last about ten years.

The estimated hours of treatment need for coronal amalgams among the 1976 Canadian population are some 18.7 million hours (Figure 7) and is based on the 1976 Canadian dentulous baseline population shown in Figures 4 and 5. Because of the lack of reliable age- and gender-specific DMFT scores for the entire Canadian population,³⁹ and the similarity between the US and Canadian caries scores, the mean US scores have been substituted for this analysis. Therefore, the mean DMFT scores for 1976 are assumed to be the same as those observed during the NCHS 1971-74 dental health survey — scores that were recorded prior to the documented decline in caries among children and young adults.

To project the hours of treatment need for coronal amalgam in permanent teeth for the year 2001, we have assumed a decline in caries for both children (as observed in the 1979-80 NIDR dental health survey) and young adults (the same projected rate of decline as observed during the two NCHS surveys) as illustrated in Figure 1.¹⁵ But because of the lack of documented evidence to the contrary, the DMFT scores among adults over age 35 years are assumed to remain stable. In addition, two alternative assumptions regarding the change in the number of dentulous adults are made. The first alternative is to assume that the Canadian dentulous population remained stable, using the model shown in Figure 6 this results in 2 million additional hours of treatment needed despite a decline in caries among children and young adults (not shown). If, instead, the assumption is made that the proportion of dentulous adults does increase, the number of hours of treatment need for coronal amalgams in permanent teeth will increase to a total of 21.7 million hours. As illustrated in Figure 7, this is an additional 3 million hours more than the hours of unmet need estimated in 1976. Thus, regardless of the assumption made about the proportion of edentulous adults, in the year 2001 the projected increase in hours of treatment need will occur in the adult population despite the decline in caries (and treatment need) among children and young adults.

Periodontal Diseases: Figure 8 displays

the model used to convert the prevalence of periodontal disease into hours of treatment need.¹⁴ Again, as with the DMFT model, the hours of unmet treatment need for periodontal related services are a function of the number of age- and gender-specific adults estimated to be dentulous in a given year (see Figures 4 and 5), the prevalence of either gingivitis (disease without pockets) or periodontitis (disease with pockets), and the time required to treat either condition.

In Canada, reliable age- and gender-specific prevalence rates for the periodontal diseases among the national population are lacking.³⁹ Therefore, the prevalence of each periodontal condition (disease with or without pockets) was assumed to occur at the same rates as observed in the US³⁴ (see Table 1). Similarly, because of the lack of information, the prevalence rates were assumed to remain stable.

The treatment protocol and treatment times chosen for each category of periodontal disease severity after a critical review of the literature are shown in Table 5.¹⁴ Each protocol represents the average probable treatment for a population group and is not intended as a specific professional recommendation for an individual patient. Several groups of investigators have estimated a population group's need-for-treatment protocol from epidemiologically determined prevalence of periodontal

treatment need^{52,55} or periodontal status as measured by the PI.^{8,56,57} In addition, data from task analysis and productivity studies^{8,49,53,58-65} have shown a wide time variability for provider time required for treatment. Consequently, US and UK study results were given more weight because of their similarities to the practice of dentistry in Canada (see Table 2). Previous analyses have shown that regardless of the disease measure used to assess a population group's periodontal status (i.e., PI, need-for-treatment, or disease category), the need-base model yielded very similar estimates for unmet periodontal treatment need.⁶⁶

Figure 9 shows the results of estimating the hours of treatment need for both preventive and periodontal services among Canadian adults. In 1976, there was an estimated 12.8 million hours of unmet treatment need. If we assume that disease prevalence remains stable but the percentage of Canadian adults who are edentulous increases, the hours of unmet need are projected to expand some 6.7 million by the year 2001 to 19.5 million hours (Figure 9). Furthermore, if we alternatively assume that both the prevalence of disease and edentulism remain stable, the projection for 2001 is 18.4 million hours (not shown). Therefore, as with DMFT unmet treatment need, the unmet treatment need for periodontal services is projected to substantially

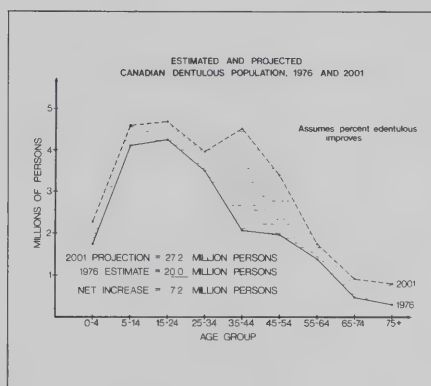


Figure 5

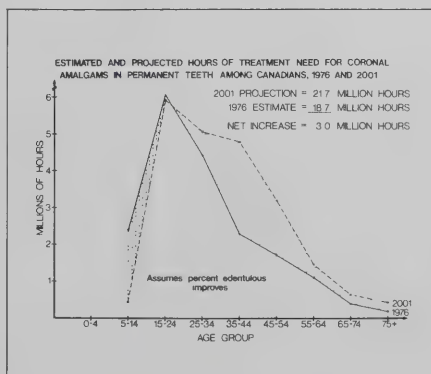


Figure 7

FIGURE 6

Model For Estimating Hours of Unmet Coronal Amalgam Treatment Need for Permanent Teeth

$$T = \sum (a_i \cdot b_i \cdot c_i \cdot (0.5)) + \sum (a_i \cdot b_i \cdot d_i \cdot (0.1) \cdot (0.5))$$

where T = total treatment hours needed

- a_i = age-specific population in a given year.
- b_i = age-specific proportion of dentulous persons in that same given year.
- c_i = age-specific mean number of decayed teeth per person in that same given year.
- 0.5 = one-half hour of service time needed per amalgam (Nash Douglass and Wilson, 1979).
- d_i = age-specific mean number of filled teeth per person in that same given year.
- 0.1 = the proportion of amalgams (filled teeth) needing replacement in a given year (Baillit et al., 1979).

SOURCE: Douglass and Gammon, 1984¹⁵

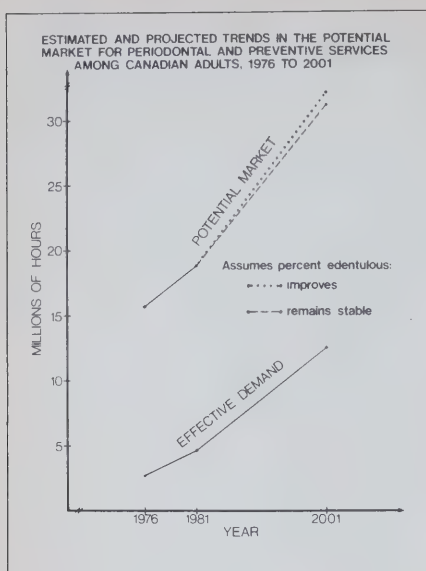


Figure 6

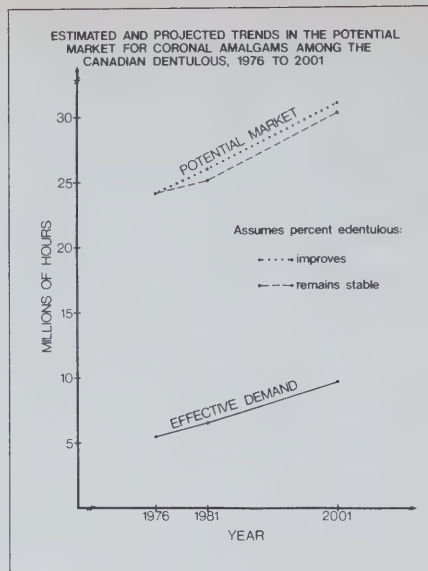


Figure 7

TABLE 1

Proportion of Dentulous Adults in the US with Gingivitis and Periodontitis by Age and Gender, 1971-74

Age (Years)	Men		Women	
	Gingivitis	Periodontitis	Gingivitis	Periodontitis
18-24	42.0	7.1	25.6	5.8
25-34	30.8	15.7	25.9	12.1
35-44	25.7	30.5	21.4	22.2
45-54	22.7	37.7	21.3	29.7
55-64	15.3	46.9	18.1	35.8
65-74	13.1	58.9	13.8	42.9
TOTAL, 18-74	28.1	26.6	22.5	20.4

SOURCE: Douglass et al., 1983³⁴ and Institute of Medicine, 1980⁹

TABLE 2

Mean DMFT Scores Among Canadian and US Children by Age, Year of Survey and Province

Year and Province	Age (in Years)							
	5	6	7	9	13	14	15	17
1968-74 ³³								
British Columbia	1.5						10.0	
1976 ⁴³								
Manitoba (urban)	0.06			2.26	4.53			7.13
Manitoba (rural)	0.13			2.92	6.67			9.22
1977 ⁴¹								
Quebec					8.5	9.0		
1978 ^{40,42}								
Alberta		0.34	0.71		4.74	5.37		
Ontario			1.5*		4.4**			
1980 ³³								
British Columbia	0.05			1.94	4.95		6.99	
1979-80 ³⁰								
USA	0.7		0.44	1.26	3.38	4.04	4.94	8.35

*Score includes children 8-9 years old
**Score includes children 13-14 years old

older persons with periodontal pocketing will increase.³⁵ With more teeth at risk to periodontal pockets in the increasing number of elderly, one could reasonably hypothesize that the risk of root caries, unlike coronal caries, will also be likely to increase. However, others⁷⁴ have reported that life-long exposure to fluoridation may contain the prevalence of root surface caries. Clearly, the data on the epidemiology, etiology, and prevention of root caries are limited⁷⁵ and thus, we felt it more prudent to omit the potential impact of this factor from our projections.

Another consideration that could affect our projections has also been excluded because of the lack of data. A recent national study has shown that a substantial percentage of children are caries-free, whereas some 20 per cent accounted for nearly 60 per cent of all decay found.⁷⁶ Although findings in a select group of adults indicate that a small proportion of adults requires the largest proportion of restorative treatment needs,⁷⁷ the actual percentage of caries-susceptible adults in the US population is unknown. In addition, the secular trends of high-risk caries groups in adults are unknown. No doubt the projections for this analysis, which are based on mean DMFT for all dentulous persons, would be improved if the adult caries risk group was identified and epidemiologic trends determined.

Periodontal Diseases: Several aspects of the methodology reported here could affect the magnitude of the estimated difference between the nation's unmet periodontal need and supply of periodontal services. First, several assumptions were necessary in order to convert the disease prevalence to hours of unmet need. The treatment protocol chosen for each periodontal condition was general and conservative in order to provide estimates of the group's needs. Choosing a "correct protocol" is also complicated by lack of consensus within the dental community on either the appropriate treatment for advanced periodontal disease or the effectiveness of current methods of treatment and prevention in maintaining good periodontal health.⁷⁸ In addition, the quantification of the disease status was determined by a dental epidemiologist who would be more likely than a clinician to exclude questionable conditions. At least in one instance, however, Heloe⁶¹ reported that the periodontal treatment plans developed by the public health dentist were comparable to protocol devised independently by the private practitioners. However, even if the periodontal diseases could be easily and consistently diagnosed, this would not provide a measurement of the precise type of treatment required, or the past treatment

perceived or of past treatment failed. Thus, the chosen treatment protocol used for the estimates presented here probably *underestimates* the actual time that would be required to treat each person's periodontal problems.

Implications for the Dental Care Market:

The results of the analysis presented here have several implications for the dental care market. The impact on types of services rendered and the recent growth in the number of dentists and hygienists are briefly discussed here.

Types of services rendered: The decline in need for restorative services in children may not necessarily translate into lost income for dentists or hygienists. In the US, there is no evidence to show that the mean net incomes for pedodontists have declined. * Moreover, the increasing use of sealants may well translate into a situation for children's dentistry in which revenue per child will go up as parents decide to pay for effective preventive dentistry.

Among adults, restorative dentistry will differ depending upon the age cohort of the patient. With longer life, retention of more teeth, and retention of more molar teeth, coupled with increases in the socioeconomic status of the older generations and their higher expectations for their oral health, it would seem that the demand for dental services will extend much farther into the older age groups than has been the experience in the past. Hence, several changes in the types of services rendered to the older cohorts of patients should be expected. Specifically, it would seem that the indications for single crowns and short span bridges will increase due to the retention of a greater number of healthy abutment teeth in 60 to 85 year old patients. Also, for those adults who were born before 1955-60 and did not experience the advantage of community water fluoridation or clinical preventive dentistry from private practitioners, the operative dentistry maintenance and replacement requirements will be markedly higher than previous generations. With the greater retention of teeth also comes a reduction in full, and probably partial, dentures and an increase in the need for endodontic therapy on older teeth and the greater risk of advanced periodontal disease as reported in this paper.

For today's children and adolescents, as they advance into the middle ages of 35 to 55 by the year 2001, a different case mix of services may be required. For example, these age cohorts should be presenting at

oral examinations with smaller and smaller carious lesions. Given the principle of retaining sound tooth structure, smaller lesions should require more conservative cavity preparations. Thus, a possible therapy that may begin to be added to dentists' treatment alternatives is remineralization procedures. With more virgin surfaces present in the middle and older adult dentition, we may see a greater tendency for small lesions to reverse themselves under such professionally controlled and supervised therapy. Thus, the proportion of full crowns, fixed and removable partial dentures, inlay-onlays, gold foil, composite and amalgam restorations are likely to shift during the next 20 years. More conservative restorations will be needed in younger patients, while a greater number of complex restorative services will be needed by the older adults for the next 20 to 30 years.

The Supply of Dentists. One of the major concerns of the dental profession in western industrialized countries, including Canada,^{38,79-81} has been the rapid growth in the number of practicing dentists. Specifically, will this growth outstrip the need and demand for dental care? The analysis presented in this paper suggests that as the Canadian dental profession increases over the next 20 years, the gap between unmet need and met need will not narrow. Furthermore, it is important to realize that the

TABLE 3

Mean DMFT Scores Among Canadian or US Dentulous Adults by Age, Year of Survey and Location

Year and Location	Age Group (in years)	
	25-34	35-44
1970-72 ⁴⁴		
Canada	15.6*	
1971-74 ⁴⁵ USA	15.4	19.2
1975 ⁴²		
Baltimore		15.8
1978 ⁴²		
Ontario	13.8	16.5
*Mean score of all adults with the average age of 30 years		

TABLE 4

Mean Oral Hygiene Scores and Periodontal Index Scores Among Canadian or US Dentulous Adults Ages 35-44 Years by Year of Survey and Location

Year	Location	Mean OHI	Mean PI
1978 ⁴²	Ontario	1.44	0.96
1975 ⁴²	Baltimore	1.16	2.10
1971-74 ³⁴	USA males	1.3	1.33
	USA females	0.7	0.95

TABLE 5

Recommended Provider Time Required and Periodontal Treatment Protocols for Category of Disease Severity

Treatment	Time Requirements
prophylaxis and oral hygiene instruction (prophy + OHI)	30 min/mouth
scaling (sc)	15 min/quad
surgery (su)	45 min/quad
simple extraction	11 min/tooth
Category of Disease Severity	Treatment Protocol
No disease	no treatment
Periodontal disease without pockets (gingivitis)	prophy + OHI
Periodontal disease with pockets (periodontitis)	+ sc (2 quads)
	prophy + OHI
	+ sc (2.5 quads)
	+ su (2.5 quads)
SOURCE: Douglass et al. 1984 ¹⁴	

TABLE 6

Manpower Supply in Canada, 1971 to 2001

Dental Provider	1971	1976	1981	2001
Active Dentists	7,389	9,401	11,195	15,668
Licensed Hygienists		1,684		
Full-Time Equivalent Dentists			10,191	14,449
Full-Time Equivalent Hygienists			3,245	11,014
Compiled from: House, Johnson and Edwards 1983 ⁶⁷ and Canada Year Book 1978 ⁴⁸				

*Personal communication. Barbara Jones, American Dental Association, April 18, 1985.

increase among the Canadian population regardless of the assumptions made about the prevalence of edentulism.

Another possible scenario that could affect the projections for unmet periodontal treatment needs is a change in the prevalence of disease. Suppose, for instance, that the prevalence of gingivitis, as has been suggested, was reduced from nearly one-quarter of all adults to zero, but the prevalence of periodontitis remained unchanged. Therefore, the estimate of unmet need would be based solely on need for advanced periodontal treatment services. In 1976 the number of hours needed for advanced periodontal services was estimated at approximately 8 million. The 2001 projections for unmet advanced treatment needs range from 13.6 million hours, if the rate of edentulism is assumed to remain stable, to 14.4 million hours if edentulism is assumed to improve (not shown). Therefore, the total hours of estimated and projected unmet treatment needs would be reduced by slightly more than one-quarter. More important, however, the net increase between 1976 and 2001 would be proportionately higher. For example, in the first projections (Figure 9), where both gingivitis and periodontitis are assumed to remain stable until 2001, the increase in hours from 1976 to 2001 ranges from 44 to 53 per cent. If instead the assumption is that gingivitis would decline to zero by 2001, but periodontitis would remain stable, the hours of unmet need increases by some 69 to 80 per cent (not shown).

Determining Met Treatment Need:

Canadian met dental treatment need can be estimated from dental productivity data using a multiplicative model (Figure 10).^{14,15} Hours of Canadian provider time effectively demanded (met need) is a function of the number of dental professionals licensed and active in Canada for a given year, the mean hours worked per year for each provider, and the mean proportion of the provider's time spent delivering a specific dental service (Figure 10). The estimated and projected Canadian dental manpower statistics are listed in Table 6.^{48,67} The number of active dentists is forecast to more than double in a 30-year time span from an estimated 7,389 in 1971 to 15,668 in 2001. The projected increase in dental hygienists is even greater, from some 3,245 in 1981 to 11,014 in 2001.⁶⁷

The dental productivity data used in the model illustrated in Figure 10, because of the lack of similar data in Canada, are based on US observations collected in 1976-77 by Research Triangle Institute.⁴⁹ The study was a representative sample survey of 851 US general dentists in which times and types of services provided were recorded during a total of 13,883 sample patient visits. Of the 1673.08 mean hours per year at work, general dentists spent 37.8 per cent of their time on operative services. Similarly, of the 1,082.2 mean hours worked by hygienists, 4 per cent of their time was spent on operative services. The percentage of time spent

delivering both periodontal and preventive services among general dentists totaled 10.1, whereas among hygienists the sum was 84.9 per cent. For periodontal services only, however, the proportion of time spent is much less, 1.9 per cent or 1.4 per cent for dentists and hygienists, respectively. These data were then used to calculate the mean annual number of hours the general dentist spent delivering either operative services or periodontal related services effectively demanded (met need).

The results of estimating and projecting the met need for operative or periodontal related services among the Canadian dental professionals are compiled in Table 7. The projected calculation for both 1981 and 2001 are based on the assumptions that 1) Canadian dental manpower will increase as projected,⁶⁷ 2) the productivity of dental professional time will remain constant over time, and 3) those with dental diseases will perceive their need and effectively demand those services at least at the 1976 rates. Between 1976 and 2001 the total hours of operative services effectively demanded is predicted to increase by 75 per cent from 5.5 to nearly 9.7 million hours. In the same 25-year period the total hours effectively demanded for periodontal and preventive services are projected to quadruple from barely 3 million hours to 12.6 million hours. If, however, only periodontal services are considered alone, the number of hours effectively demanded can be expected to double from 0.3 to over 0.6 million hours.

FIGURE 8

Model for Estimating Hours of Unmet Need for Periodontal Treatment from Categories of Disease Severity

STEP I: Age and Gender Specific Number of Edentulous Adults in Canadian Population SOURCE: Based on data from 1970-72 Dental Survey* 44* and Canadian Population Projections ⁴⁸	×	Age and Gender Specific Percent of Adults by Category of Disease Category SOURCE: Douglass et al., 1983 ³⁴	=	Number of Adults by Category of Disease Severity
STEP II: Convert Disease Category to Treatment Protocol SOURCE: Based on selected dental literature reviewed in Douglass et al., 1984 ¹⁴		STEP III: Estimated Provider Time (in hours) Needed for Each Treatment Protocol SOURCE: Based on observations reported in the literature reviewed in Douglass et al., 1984 ¹⁴		STEP IV: Multiply STEP I × STEP III
SOURCE: Based on Douglass et al., 1984 ¹⁴				RESULTS: Hours of Unmet Need by Disease Category

Potential Market for Dental Services

By combining the results of the analyses to determine both met and unmet need for dental services, the potential market in Canada can be estimated for 1976 and projected to the year 2001. The trend in the potential market for coronal amalgams in permanent teeth is illustrated in Figure 11. The upper two curves illustrate the increasing trend projected for the market in operative services because of the demographic growth of the population, despite the decline in the prevalence of caries. In addition, the alternative assumptions made concerning the population at risk only slightly affected the potential expansion of the market. For example, if the proportion of the population that is edentulous is assumed to remain stable the market for operative services will increase by 25 per cent from 24.2 million hours in 1976 to about 30.4 million in 2001, and is illustrated by the lower value of the two-pronged curve. If instead the per cent edentulous is assumed to improve, the potential market trend is projected to increase to 31.4 million by 2001 and is illus-

trated by the higher value. This latter increase represents a 30 per cent increase in a twenty-five year period.

The lower curve in **Figure 11** depicts the projected gain in effective demand for operative services of 5.5 million hours in 1976 to 9.7 million in 2001. The comparison between both an increasing effective demand and potential market is instructive; the large gap that exists in 1976 is projected to slightly increase by 2001 despite the nearly doubling of the capacity to deliver services. Because both the estimates and projections of national unmet need for coronal restorative services are based on prevalence data, the assessments of hours of need includes both new disease as well as the backlog. Furthermore, because of the assumptions made regarding a stable utilization rate of dental services, this proportionate backlog of need for treatment will remain essentially unchanged unless there is an unforeseen marked increase in the nation's utilization patterns.

The trends in the potential market for periodontal and preventive services are outlined in **Figure 12**. As with coronal amalgams, the market for periodontal and preventive services is projected to increase, but at a greater rate; between 1976 and 2001 the market is projected to double. Again, the major reason for this remarkable growth despite an assumption of stable disease prevalence, is the projection of an expanding population. The higher value of 32.1 million hours in the year 2001 on the potential market curve in **Figure 12** is based on the assumption the percentage of adults who are edentulous will improve. The lower value of 31 million hours is based on a stable edentulous rate through 2001.

The effective demand trend for periodontal and preventive services depicted in the lowest curve of **Figure 12** also shows an increase. As discussed above, this 75 per cent increase in a 25 year period assumes stable per dentist productivity and an increase in the projected availability of manpower. Comparison of the two curves illustrating a trend between the potential market and effective demand shows a widening of the gap between unmet need and met need despite an expansion of manpower production.

Figure 13 shows the market for advanced periodontal services based on the less probable assumption that the prevalence of gingivitis will be reduced to zero by the year 2001 and only the prevalence of advanced periodontitis (disease with pockets) remains stable. Although the millions of hours involved are less dramatic, the gap between periodontal services effectively demanded and services needed is far more impressive. For example, based on the assumption that

neither perceived need nor utilization of dental services improves, the effective demand for advanced periodontal services will only increase from 0.3 to 0.6 million hours, as illustrated in the lower curve of **Figure 13**. Interestingly, the potential market for advanced services is also expected to double – but the number of hours is much different. As shown in the upper curve, in 1976 the market is estimated as 8.3 million hours and projected to expand to 14.2 million hours by 2001 if edentulism does not improve, or 15 million if edentulism does improve. Thus, the disparity between met and unmet need for advanced periodontal services is projected to get worse in this 25 year time period unless the public's perception of perceived need and subsequent effective demand for services is improved along with the dental profession allocating more time to preventing diagnosing and treating advanced periodontal disease.

Methodological Considerations:

The projections presented here predict substantial increases in need for treatment for the adult population; however, several considerations could shift these predictions up or down. For instance, new information obtained from the pending US NIDR adult dental health survey supplemented by Canadian studies that are currently ongoing, such as the dental health survey of elderly adults in Manitoba,⁶⁸ will provide additional data that will improve our ability to make better predictions. Perhaps older adults will experience a lower incidence of coronal caries or the periodontal diseases in the future, thus making the projections presented here slightly high. Another possibility is that as younger cohorts age, they will maintain their early advantage into mid-life. This scenario would also indicate that our projections will be overestimates. The important idea to remember is that as we attempt to determine disease trends, we should not only look at age-specific experience, but also examine the cohort experience as well.^{1,69}

Caries: The projections in the need for operative dentistry services could easily be underestimates. Perhaps the elderly will have greater operative dentistry needs than we expect because of our failure to consider the impact of the treatment need for root caries or other conditions unique to a rapidly growing older population. Because of the lack of data,⁷⁰ however, the impact of the trends in root caries has not been included. The epidemiology of root caries has shown that the prevalence increases with age as well as with an increase in the number of teeth and gingival recessions.⁷¹⁻⁷³ There is also a good possibility that with an increase in the dentulous population, the number of

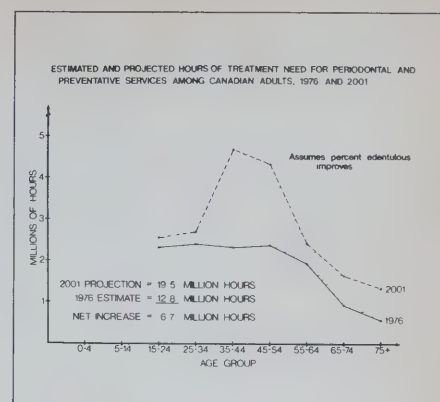


Figure 9

FIGURE 10

Model for Estimating the Hours Effectively Demanded of the Dental Profession for Treatment Services

- $$T_{si} = \sum (a_i \cdot b_i \cdot c_{si}) + (d_i \cdot e_i \cdot f_{si})$$
- T = total number of hours effectively demanded of the dental profession for a specific service(s) in a given year(i)
- a = number of general dentists in Canada in a given year (i)
- b = general dentists' mean hours worked per year (i)
- c = proportion of general dentists' time spent delivering a specific treatment service(s) in a given year (i)
- d = number of dental hygienists in Canada in a given year (i)
- e = dental hygienists' mean hours worked per year (i)
- f = proportion of dental hygienists' time spent delivering a specific treatment service(s) in a given year (i)

SOURCE: Douglass et al. 1984¹⁴ and Douglass and Gammon 1984¹⁵

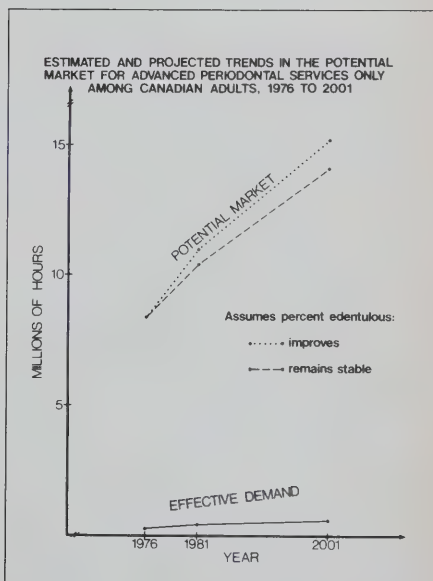


Figure 11

52 per cent growth in number of dentists in the ten year period between 1971 and 1981 will slow to a 20 per cent growth per decade between 1981 and 2001. Even then, with the interaction between demographic and epidemiologic changes, the differences between the unmet need and effective demand will not decline. In addition, per capita expenditures, when the effects of inflation are removed, have increased threefold between 1960 and 1980.⁸² If this trend should continue, effective demand for dental services would increase. Although this latter scenario was not included in the analysis reported here, an increase in met need would surely help to close the widening gap between effective demand and the potential market. Hence, the leaders in Canadian dental policy positions may need to be cautious before promoting precipitous policies that would markedly reduce the number of dental school graduates that are coming into the profession. An appropriate national policy should be developed that maintained a steady state ratio between the capacity of the dental profession and the need and effective demand for dental care.

CONCLUSION:

This paper has examined the current available evidence on the projected demography of the Canadian population and has coupled these data with the epidemiology of dental caries and the periodontal diseases to predict national dental treatment need to the year 2001. The findings show that the number of hours required to meet all need for both operative dentistry and periodontal treatment in Canada will increase by the year 2001 by many millions of hours. This trend is driven largely by the increasing number of dentulous adults who will be present in the older age groups by 2001.

In sum, it would seem that the dental policy leaders of Canada in planning for the future should pay particular attention to the interaction between the epidemiology of dental diseases in adults and the significant demographic changes that will take place within the Canadian population over the next 20 to 30 years.

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TABLE 7

Dental Services Effectively Demanded in Thousands of Hours Among Canadians, 1981 vs. 2001

Service Effectively Demanded	Hours (in 1000's)		
	Dentist	Hygienist	Total
1976			
Operative	5,444.9	72.9	5,517.8
Advanced Periodontal	272.2	25.5	297.7
Periodontal + Preventive	1,447.2	1,547.2	2,994.4
1981			
Operative	6,479.1	140.5	6,619.6
Advanced Periodontal	324.0	49.2	373.2
Periodontal + Preventive	1,722.1	2,981.5	4,703.6
2001			
Operative	9,186.2	476.8	9,663.0
Advanced Periodontal	459.3	166.9	626.2
Periodontal + Preventive	2,441.6	10,119.5	12,561.1

NEED FOR TREATMENT

IMPLICATIONS OF DISEASE TRENDS

Dr. Trevor Chin Quee

Reactor Paper Presented by Dr. Trevor Chin Quee at the Canadian Dental Association National Conference on Dental Caries Decline: Implications for Private Practice and Public Programs, Montreal, February 1, 1985.

INTRODUCTION

Dr. Douglass' presentation reminds one of those "good news-bad news stories". The good news is that we are now living longer but the bad news is that the longer we live the more at risk we are to developing disease.

The scenario presented by Dr. Douglass is as follows:—

Dental Caries

The below-35 age group, will continue to show a decline in DMFT due mainly to a decline in decay as well as a decline in the number of missing teeth. Among the 35-and-over age groups, if present trends continue, the DMFT will remain unchanged or slightly increased. Although the prevalence of decay remains constant, the number of filled teeth will increase. With the exception of the 35-44 age groups, the population is also retaining more of its teeth.

Based on the data from national and regional dental health surveys both in the U.S.A. and Canada, as well as a prediction by census bureaus of increasing longevity in the population, Dr. Douglass projects

that, because of the large increase in the number of middle-aged and older adults, by the year 2000 the operative treatment needs of the population will increase by many millions of treatment hours even if we assume a declining DMFT for adults. When he projects the dental manpower available for carrying out operative dentistry in the year 2000, we find that there is a shortfall in manpower hours of at least 60 per cent despite the assumptions that i) the number of dentists will increase by 38 per cent, ii) the dental service need will be perceived, demanded and utilized at the same rates that prevailed in 1976-77.

Periodontal Disease:

In today's presentation, as well as in previous papers^{1,2} on the national trends and severity of periodontal disease, Dr. Douglass reported that in the U.S.A. during the 12-year period between 1960-62 to 1971-74 there was a near doubling of persons without disease (26 per cent to 51 per cent) as well as a significant decline in gingivitis at all age groups. The prevalence of periodontitis, however, remained unchanged or declined slightly. When he examines the data more carefully, he finds that in the below-35 age group there was a decline in periodontitis but that in the 35-and-older age group there was no decline. Because of the lack of Canadian data on the prevalence of periodontal disease Dr. Douglass assumes, for the purpose of his calculations, a prevalence similar to the U.S.A. As the population ages the prevalence of periodontitis increases. Since the older age groups are increasing in numbers and retaining more of their teeth, the num-

ber of persons with periodontitis will continue to increase at least for the next 30 years. Again when he projects the met and unmet need, there is a shortfall of many millions of manpower hours.

Based on these projections, in the next 30 years we are faced with an increasing number of persons with dental disease.

How is the Dental Profession Planning to Meet This Increased Need?

In recent years, we have seen many dental schools talk about cutting or actually cut their enrolment. In the U.S.A., the number of dental students has been reduced 16 per cent over the past few years³. In Canada, in 1983 the Royal College of Dental Surgeons of Ontario recommended to the Ontario Ministry of Colleges and Universities that they consider reduction of enrolment at both the University of Toronto and the University of Western Ontario⁴. The reasons given were a growing surplus of dentists, a diminishing population and a decreasing patient load. The deans of both of these schools were in agreement in principle with these recommendations and since then, the University of Toronto has cut their class size from 125 to 100. There are no plans for any of the other schools to increase their class size. What is quite clear is that we are not planning for a future such as the one projected by Dr. Douglass. On the contrary, in a report titled Manpower Supply Study: Scenarios for the Future: Dental Manpower to 2001 commissioned by the Canadian Dental Association, House et al⁵ (1983) wrote "the supply of dentists . . .

will continue to grow at a greater rate than the population. The supply of dentists will increase by around 40 per cent over the next 20 years. The population, on the other hand will grow at a lower rate (19 per cent). By the year 2000, the dentist to population ratio is predicted to be: 1:1828." Unlike Dr. Douglass' paper, this study makes no attempt to assess the needs of the population nor do they recognize the fact that the population will include larger numbers of older age groups. This is an important document for Canadian dentistry, however, since it will probably be the basis for many policy decisions by the CDA as well as both provincial and federal governments. This study also reinforces the widely held perception among dental practitioners that there is an oversupply of dentists in Canada. This has been a recurrent cry for several years. The message brought to us today is that we should not be too hasty to cut enrolment in dental schools in order to deal with the decreased "busyness" of dental practises. We must first find other solutions to this problem. The following are some of the solutions we should consider:

- i) We must find a way to convert the unmet need into demand. This, I think, will be the challenge of the future.
- ii) We must find a way of inducing new graduates to practise in poorly served areas.
- iii) General practitioners must stop specializing in restorative dentistry.

Historically, the practise of dentistry has meant largely the practise of restorative dentistry despite the fact that periodontal disease is the major cause of tooth loss in the adult population. A study by Douglass and Day⁶ in 1979 indicated that general practitioners devoted less than 3 per cent of their time addressing the periodontal and orthodontic needs of the population. Data from North Carolina (Bawden and Defriese, 1981)⁷ indicated that North Carolina dentists spent less than 2 per cent of their time treating periodontal diseases.

Dr. M. Skougard⁸ in his keynote address at the 8th International Conference in Oral Biology in Tokyo in 1980 made the observation that despite the fact that many European countries have dentists/population ratios approaching 1:1000, dental disease remains far from being eliminated. In the case of periodontal disease the level of disease in the population was such that if every person in Denmark over the age of 25 were to receive periodontal treatment according to their professionally assessed treatment need then every dentist in the country would have his full working capacity occupied carrying out oral hygiene instruction, scaling and pocket treatment. Similar estimates for other European countries have resulted in similar conclusions. Dr. Skougard con-

cluded that the level of periodontal disease is so bad that traditional periodontal treatment of the adult population would be totally unrealistic.

Implications for Dental Curriculum

In recent years much has been written and said about the overload of the dental curriculum and the difficulty of finding time to teach new material. In light of the declining prevalence of dental caries, Reed and Mann⁹ in 1983 suggested a possible solution would be the reduction in the teaching of restorative dentistry with an increase in the time spent teaching both periodontics and orthodontics. Cherrick¹⁰ (1983), commenting on Dr. Reed and Mann's paper, posed the question "given the probability of further reduction but persistence in dental caries and the decreased need for sophisticated restorative procedures, to what extent should operative dentistry be taught in the curriculum?" He went on to state "The continued reduction in the prevalence of dental caries could make the caries-oriented curriculum obsolete within the next ten years."

Today we have heard Dr. Douglass conclude that, in light of his data, these plans to reduce the time spent teaching operative dentistry in the curriculum are premature. If so, then where does that leave orthodontics and in particular periodontics? Should we forget about trying to increase the time spent teaching periodontics? In 1981¹⁰, the average number of hours spent teaching the subjects of operative dentistry, fixed and removable prosthodontics and dental materials at all dental schools in the U.S.A. was 1623 hours or a total of 35 per cent of the curriculum time. In contrast, the average time spent teaching periodontics was 276 hours or 5.9 per cent of the total curriculum time; this, despite the fact that today periodontal disease remains the major cause of tooth loss among the adult population. This orientation towards restorative dentistry in dental education is no doubt one of the reasons why the general practitioner focuses solely on restorative dentistry and spends less than 3 per cent of his time on orthodontics and periodontics. At the N.I.D.R. Workshop on Surgical Therapy for Periodontitis¹¹ held in 1981, the following statement was made about scaling and root planing: "Not only are scaling and root planing fundamental procedures in the treatment of periodontitis, but they are also among the most difficult techniques in all of clinical dentistry in which to develop a minimum level of proficiency. Therefore, it is strongly recommended that dental schools expand their curricula in order to improve the skills of dental students to recognize gingival disease early and to

provide expert treatment of periodontally diseased roots." I don't have to remind many of you about the difference in preparation you had in dental school between restorative dentistry and periodontics. Well, things have not changed much since then. At a teaching conference on undergraduate periodontics held under the auspices of the A.A.P. in Atlanta in 1983, the feeling was that our graduates were not capable of properly carrying out a good scaling and root planing.

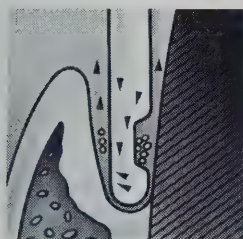
The teaching of periodontics cannot wait until time is freed up in the curriculum by the decline of dental caries. We must find the time now to properly teach periodontics. We owe it to our students and we owe it to the public.

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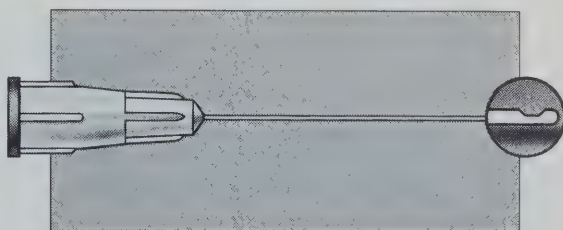
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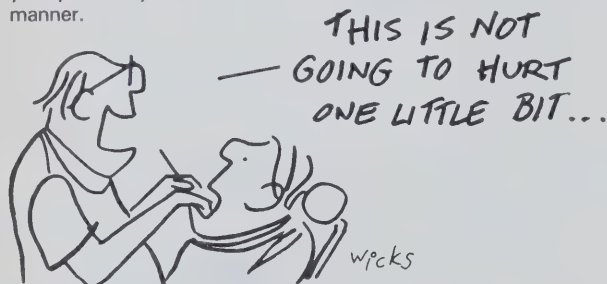
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LYMPHOME NON HODGKINIEN

François Blondeau, DMD
Québec, Québec

RÉSUMÉ

Les lymphomes sont les plus fréquentes tumeurs malignes au niveau de la cavité buccale avec les carcinomes épidermoïdes et les tumeurs des glandes salivaires. Une présentation extra-ganglionnaire est donc fréquemment retrouvée. Les caractéristiques générales des lymphomes sont revues avec insistance sur le lymphome non-Hodgkinien. Nous présentons également un patient porteur d'un lymphome non-Hodgkinien du sinus maxillaire.

SUMMARY

Lymphomas of the oral cavity are frequent malignant tumors with squamous cell carcinomas and tumors of the salivary glands. Extra-nodal involvement is frequently seen. The characteristics of lymphomas in general are reviewed and specifically those of the non-Hodgkin lymphoma. The text is also illustrated with a case report of maxillary sinus non-Hodgkin lymphoma.

GÉNÉRALITÉS

Chez les enfants américains, les lymphomes sont les troisièmes tumeurs malignes les plus fréquentes après les leucémies et les tumeurs du système nerveux central¹. Les lymphomes sont des tumeurs malignes originant du système réticulo-endothelial². Les tissus impliqués sont surtout les ganglions

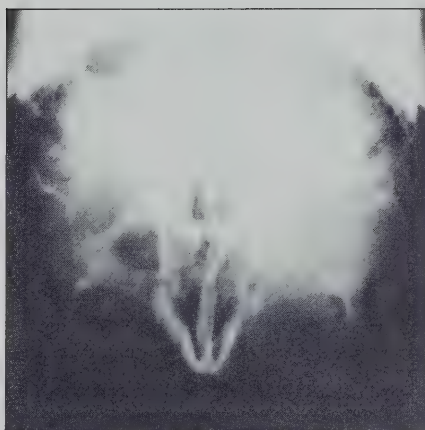


Fig.1 Radiographie du massif facial (Waters) démontrant un voile complet du sinus maxillaire gauche.

et la rate. Cependant, des localisations extra-ganglionnaires sont parfois retrouvées principalement dans le cas du lymphome non-hodgkinien (LNH)^{1,3,4}. Ce sont donc des tumeurs solides; elles présentent un large éventail clinique et pathologique tel que nous le verrons dans ce texte.

Le LNH se localise dans les ganglions (rate comprise) dans environ 60 pour cent des cas et dans d'autres tissus pour le reste. Quant au lymphome hodgkinien (LH), celui-ci se retrouve au niveau ganglionnaire chez près de 90 pour cent des patients². Le LNH se développe en général à partir des lymphocytes de type B⁵. Pour le lymphome hodgkinien, la cellule primitive n'est pas identifiée avec certitude.

Étiologie

L'étiologie mise en cause serait virale pour certains lymphomes. Pour le lymphome de Burkitt, localisé principalement dans certaines régions d'Afrique, un agent viral appelé le virus Epstein-Barr (EBV) est connu^{2,6,7}. De plus, dans des études prospectives portant sur des patients atteints de mononucléose, un suivi a permis de découvrir que ces patients présentaient un plus haut taux d'incidence de lymphomes. Les patients porteurs du syndrome de Sjogren augmentent leur incidence de 10 pour cent. Des patients prenant du phénytoïne ont une tumeur "lymphome-like" qui se rétracte avec l'arrêt du médicament, mais par la suite, ces patients développent plus souvent des lymphomes. Cependant une relation de cause à effet n'a pas été impliquée. Il en est de même pour les patients immunosupprimés pour différentes raisons^{2,8}.

Épidémiologie et classification

L'incidence des lymphomes en général est à la hausse, mais aucun facteur n'a été mis en évidence. L'âge moyen est de 42 ans pour le LNH (32 pour le LH)². De plus, une répartition géographique a pu être déterminée: le lymphome de Burkitt en Afrique Centrale alors que le lymphome à localisation abdominale se retrouve dans la région Méditerranéenne.

Les stades définissent l'extension croissante de la maladie (Tableau I)⁵. De plus, il y a classification en "A" ou en "B" selon que l'un des critères suivants est noté: perte

TABLEAU I

Classification du stade (Ann Arbor)

Stade I
atteinte à une seule région ganglionnaire ou extra-ganglionnaire.
Stade II
atteinte de deux régions ganglionnaires ou plus du même côté du diaphragme.
Stade III
atteinte ganglionnaire des deux côtés du diaphragme.
Stade IV
atteinte diffuse ou généralisée d'un ou de plusieurs organes ou tissus extra-ganglionnaires, avec ou sans atteinte ganglionnaire associée.

TABLEAU II

Classification histologique révisée de Rappaport

TYPE

Nodulaire (folliculaire)
Lymphocytaire bien différencié
Lymphocytaire peu différencié
Mixte: lymphocytaire et histiocytaire
Histiocytaire
Diffus
Lymphocytaire bien différencié
Lymphocytaire peu différencié
Mixte
Histiocytaire
Indifférencié
Burkitt
Lymphoblastique

de poids de plus de 10 pour cent dans les six derniers mois, température inexpliquée et persistante ou récidivante, et sudation nocturne⁵.

Lymphomes non-hodgkiniens

Nous avons vu que ce type de lymphome origine principalement des lymphocytes B. Selon Lukes et Collins, c'est dans une proportion de 68 pour cent, alors que pour les lymphocytes T, c'est de l'ordre de 18 pour cent; pour les cellules U (non déterminées actuellement), de 13 pour cent et de 1 pour cent pour les histiocytes⁹.

Le patient ne ressent habituellement pas de douleur et la présence extraganglionnaire se situe surtout dans la région tête et cou (anneau de Waldeyer, sous-muqueuse, os, etc.), et au niveau digestif (estomac, iléon, côlon, rectum)^{3,5}.

Ces lymphomes sont le plus souvent classés stades III ou IV et "A" par rapport aux LH (I ou II, "B"). L'importance est premièrement de déterminer le type histologique et secondairement le degré d'extension. Nous verrons plus loin les différents types morphologiques.

Le diagnostic différentiel est varié selon le mode de présentation de la maladie. On peut penser à un problème infectieux du type abcès dentaire, pharyngite, mononucléose, syndrome viral non spécifique, etc. ou à des ulcères peptiques ou des tumeurs digestives variées. Dans le cas d'une présentation hilaire, une sarcoïdose, une tuberculose ou une tumeur pulmonaire sont à éliminer.

Le diagnostic final ne se fait que par biopsie de la lésion; la ponction aspiratrice et la biopsie iliaque aident à préciser l'extension de la maladie. Dans le cas des LNH, le diagnostic histologique peut être difficile^{2,8}. Certaines techniques de coloration et la microscopie électronique apportent des informations importantes sur l'étude des marqueurs de surface et pour confirmer le diagnostic.

Le bilan est le même que pour le LH avec radiographies, scintigraphies hépatosplénique et osseuse, biopsie de moelle (crête iliaque), ponctions sanguines pour évaluer les différentes souches cellulaires, immunoglobulines, fonctions hépatiques. La laparoscopie avec splénectomie n'est en général pas nécessaire, le stage étant plus souvent III ou IV d'emblée. On utilise en général la classification histologique révisée de Rappaport (Tableau II)⁵.

Le bilan consiste donc à déterminer d'abord le type histologique (nodulaire ou diffus et le type cellulaire) et enfin l'extension. Le type nodulaire comporte un meilleur pronostic même s'il est plus souvent à un stade avancé au moment du diagnostic.

Dans les stades I ou II, la radiothérapie peut donner de bons résultats. Le risque est le développement de la maladie dans une zone non irradiée. La polychimiothérapie a évolué beaucoup ces dernières années et n'est souvent pas plus toxique qu'une monochimiothérapie. Elle apporte un plus grand nombre de patients en rémission complète donc un plus haut taux de survie. Une combinaison de radiothérapie et de chimiothérapie est parfois utilisée. Certains considèrent le lymphome comme une maladie systémique et c'est pourquoi le traitement actuel s'oriente plus vers la polychimiothérapie seule ou combinée. Le rôle de la chirurgie est limité à certaines situations précises, soit dans un but diagnostique ou dans le traitement des complications (hémorragie digestive, compression ou obstruction d'organes, hypersplénisme)⁵.

Le pronostic, comme nous l'avons déjà dit est variable de quelques mois à plus de dix ans selon le type histologique et accessoirement, de l'extension. Dans la prochaine partie, nous illustrerons cette présentation d'un cas de LNH chez un patient de soixante ans.

Cas clinique

Monsieur J.D., cultivateur de métier s'est présenté à l'urgence pour évaluation d'une "sinusite" rebelle aux antibiotiques. Le patient fut référé à la clinique de chirurgie buccale et maxillo-faciale pour évaluation. Le patient se plaint d'oedème à la joue gauche, mais pas de douleur. Un traitement aux antibiotiques institué dix jours auparavant fut sans succès. Selon monsieur J.D., l'évolution fut rapide en trois semaines. Le

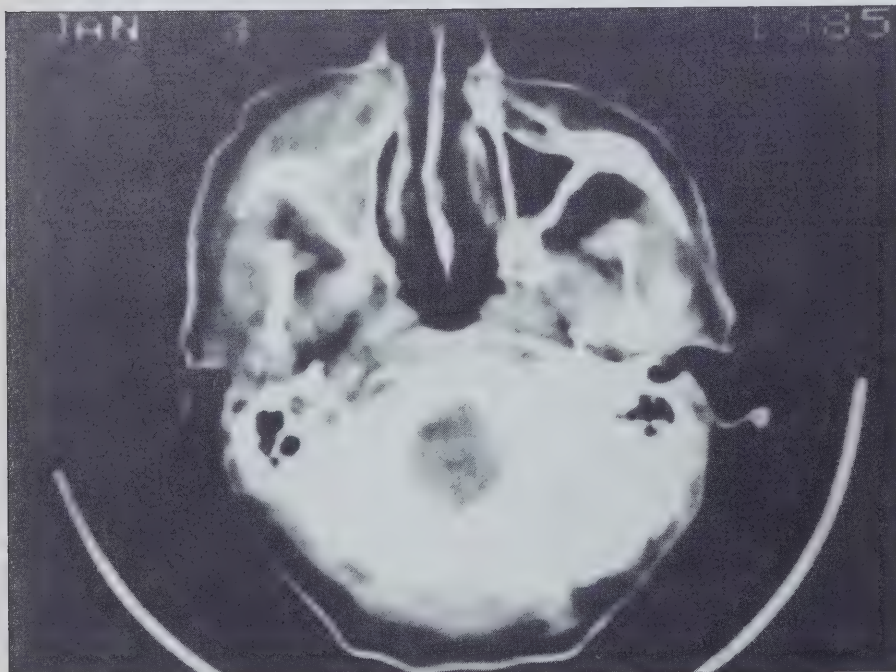


Fig. 2. Tomodensitométrie axiale du massif facial démontrant la lésion sinusale gauche et l'envahissement dans les tissus mous.

patient est non fumeur, ne prend pas d'alcool. Il est porteur de la maladie de Paget depuis huit ans, fait de l'hypertension connue, mais ne prend aucun médicament. Le reste du questionnaire est négatif (pas de perte de poids ni de sudation nocturne).

À l'examen clinique, le patient est afébrile et un oedème jugal gauche est apparent. Cet oedème implique la paupière inférieure également. Aucune paresthésie ni parésie n'est présente. Aucun trouble visuel n'est noté. Les dents ne démontrent pas de lésion sauf de l'attrition par perte de support postérieur; la percussion et la mobilité sont négatives. Une masse ferme de quatre à cinq centimètres de grosseur remplit le vestibule buccal concerné, de la région canine à molaire. La région cervicale présente deux adénopathies de 0.5 cm mobiles. Les radiographies (massif facial et panogramme) ne démontrent qu'un voile complet du sinus maxillaire gauche, sans déplacement de la paroi nasale médiane ni de signes de perforations osseuses (Figure 1).

De là, un diagnostic présomptif de tumeur maligne du sinus maxillaire fut porté. Le patient fut donc anesthésié localement et une biopsie réalisée au niveau du vestibule buccal. Une congélation de la pièce démontra la présence de cellules malignes de type lymphomateux. Le rapport définitif confirma cette hypothèse en un lymphome non-hodgkinien de type lymphocytaire diffus pauvrement différencié. Quelques jours plus tard, le patient fut admis pour bilan et début de traitement.

La tomographie axiale faciale révèle un sinus gauche voilé avec épaississement derrière la paroi postérieure de celui-ci ainsi qu'une masse des tissus mous joue gauche (Figure 2). La scintigraphie osseuse démontre une captation au maxillaire supérieur gauche. Le reste de l'investigation est négative.

Le patient présentant un stade IV, il fut traité uniquement par polychimiothérapie selon le programme BACOP⁵. L'Adryamycine est un antibiotique de cultures de streptomycètes et agit en formant des complexes rigides de DNA et inhibe la synthèse de RNA. Le Procytox est un agent alkylant de la famille des Cyclophosphamides qui agit en faisant un pontage entre les deux chaînes de DNA avec erreur dans la duplication. Le stéroïde diminue la perméabilité cellulaire au glucose causant possiblement une lympholyse par inhibition de la synthèse protéique. On combine l'utilisation de l'allopurinol pour éviter une crise d'arthrite goutteuse par élévation de l'uricémie sous l'effet de la chimiothérapie. L'allopurinol est un inhibiteur de la xanthine oxydase.

Le traitement s'effectuera sur une période d'environ huit mois (un traitement par mois) complémenté d'une thérapie moins toxique

aux deux semaines (Bléomycine et Vincristine). L'évolution du patient sera suivie conjointement par l'hématologue et par le chirurgien buccal.

CONCLUSION

L'incidence du LNH dans la sphère maxillo-faciale n'est pas inhabituelle. Le carcinome épidermoïde, les tumeurs des glandes salivaires et les lymphomes sont les trois principales tumeurs malignes de la cavité buccale³. La littérature contient beaucoup de données sur les carcinomes épidermoïdes, leur détection et leur traitement. Cependant, très peu est rapporté sur les lymphomes et le clinicien en général se retrouve peu informé sur cette entité. Une attention particulière est nécessaire afin de déterminer l'indication de biopsie. Ainsi, les retards diagnostics seront évités. De cette façon le pronostic et la survie du patient pourront être améliorés.

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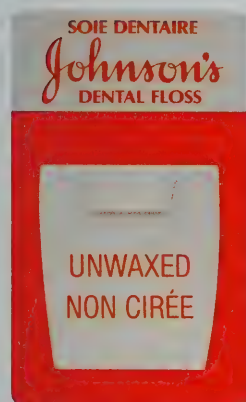
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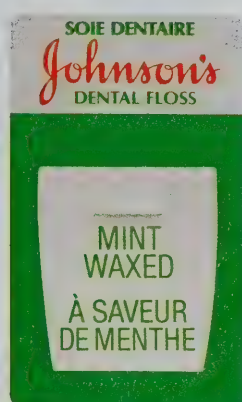
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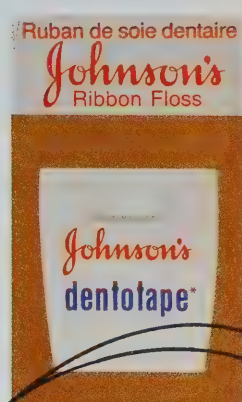
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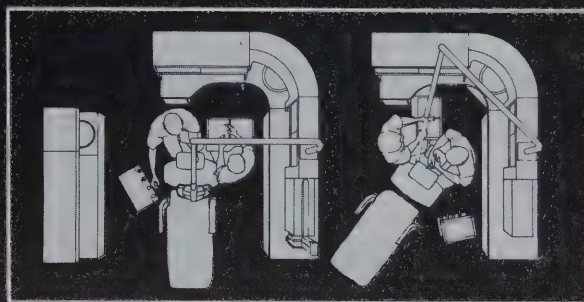
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Note: Manuscripts must be typed, doubled spaced on 8½ × 11 paper on one side of the page only. An abstract must accompany each manuscript.

References: must be keyed to the text and numbered consecutively. Journal references must give the author's name, article title, abbreviated journal name, volume number, first page number and last page number of article, year of publication:

1. Hechter, F.J. Symmetry and dental arch form of orthodontically treated patients. JCDA 44:173-184, 1978.

For books, give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H.C. Work simplification in dentistry, ed. 2. Philadelphia, Saunders, 1964.13

Permission and Waivers: must accompany the manuscript. Waivers are mandatory for the publication of photographs of patients unless faces are masked to prevent identification. Waiver forms are available from the Journal of the Canadian Dental Association, Ottawa. Permission of the author and publisher must be obtained for use of previously published material quoted in the text and for use of previously published illustrations.

Costs: Four-color illustrations are discouraged because of increasing costs of reproduction but requests for four-color illustrations will be considered on an individual basis, at the author's expense. Most articles are published at no cost to the author but a fee will be levied if extensive illustrative, formular, tabular or photographic matter is used.

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Review: all scientific articles are reviewed by selected consultant referees. Acceptance or rejection of an article for publication is based on their reports plus editorial consideration. The editor reserves the right to adjust manuscripts to conform to Journal style.

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CANADIAN DENTAL ASSOCIATION NATIONAL MANPOWER SYMPOSIUM

October 18-19, 1985

The Sheraton Centre
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PROGRAM

Friday, October 18th. Defining The Problem: Nationally & Internationally.

- 8:00 a.m. – 8:15 a.m. Opening Remarks, Dr. Ian Vogan
- 8:15 a.m. – 9:15 a.m. Canadian Manpower Data – An Update, Mr. R.K. House
- 9:15 a.m. – 9:30 a.m. Questions
- 9:30 a.m. – 10:30 a.m. Supply Slide Projections, Dr. Don Lewis
- 10:30 a.m. – 10:45 a.m. Questions
- 10:45 a.m. – 11:00 a.m. Coffee
- 11:00 a.m. – 12:00 a.m. Changing Dental Needs Of The Canadian Population, Dr. Don Lewis
- 12:00 p.m. – 12:15 p.m. Questions
- 12:30 p.m. – 1:30 p.m. Lunch
- 1:30 p.m. – 2:30 p.m. (i) Dentist Unemployment
A Scandinavian Reality, Dr. Rod Moore
(ii) Manpower Issues In The United States
- 2:30 p.m. – 2:45 p.m. Questions
- 2:45 p.m. – 3:00 p.m. Coffee
- 3:00 p.m. – 4:00 p.m. The Manpower Situation In Great Britain And The Commonwealth, Dean Derek Chisholm
- 4:00 p.m. – 4:15 p.m. Questions
- 4:15 p.m. – 5:00 p.m. Panel Discussion, Mr. House, Dr. Lewis
- 6:30 p.m. – 8:00 p.m. C.D.A. Host Reception, Sheraton Center

Saturday, October 19th. – *Strategies And Possible Solutions*

- 8:30 a.m. – 8:45 a.m. Dr. John Silver
- 8:45 a.m. – 9:00 a.m. Mr. John Gillies Corporate Bodies
- 9:00 a.m. – 9:15 a.m. Mr. Don Pamenter
- 9:15 a.m. – 9:45 a.m. Dean Schwartz – A.C.F.D.
- 9:45 a.m. – 10:00 a.m. Dr. Bill Bedford – The Role Of Government
- 10:15 a.m. – 10:30 a.m. Questions
- 10:30 a.m. – 11:00 a.m. Coffee
- 11:00 a.m. – 11:30 a.m. Dean Beagrie – Dental Manpower In The Third World
- 11:30 a.m. – 11:45 a.m. Ms. Pat Johnson – C.D.H.A. Presentation
- 11:45 a.m. – 12:00 p.m. C.D.A.A. Presentation
- 12:00 p.m. – 12:15 p.m. Questions
- 12:30 p.m. – 2:00 p.m. Lunch
- 2:00 p.m. – 4:00 p.m. C.D.A. Panel – The Role of C.D.A.
Vis-à-vis The Problem And The Solution
Open Forum For Discussion

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Announcements

SEPTEMBER/SEPTEMBRE

September 11-14: Annual meeting of the American Academy of Periodontology, San Francisco Hilton and Tower, San Francisco California. Contact: The American Academy of Periodontology, 211 E. Chicago Ave., Room 924, Chicago, Ill. 60611.

September 12-14: 37th Annual New Orleans Dental Conference, New Orleans Hilton and Towers, New Orleans Louisiana. Conference theme is "The Magic of Fine Dentistry." Contact: The Conference Office, 3101 West Esplanade Avenue, Suite 119, Metairie, LA. 7001, 504-834-6449 for information.

September 16-December 12: UCLA School of Dentistry refresher program. UCLA Extension Downtown Centre, Los Angeles, California. Contact: Continuing Education in Dentistry, UCLA Extension, 10995 Le Conte Avenue, Room 614, Los Angeles, California, 90024, 213-825-9187.

September 18-21: 4th International Dental Congress on Modern Pain Control. Bologna, Italy, Pallazzo dei Congressi. Contact: Masson Italia Congressi, Via Baldissera, 4-20129, Milan, Italy.

September 19-21: Canadian Craniofacial Society Cleft Palate Symposium and Annual Meeting, Empress Hotel, Victoria, B.C. Contact: Dr. Dennis Frazer, 202-1964 Fort St. Victoria, B.C. V8R 1K5. Dr. Gordon Wilkes, 1004-10045 111 St. Edmonton, Alta., T5K 2M5.

September 19-22: International Association for Orthodontics invites interested GPs and Paedodontists to come to Seattle, Sheraton Hotel. Speakers from Baylor, Emory and Washington Universities will cover many topics, including arch development, prescription bonding, vertical corrector, intra-oral orthodontic photography, and the use of extra oral force. Participation clinics in TMJ and functional appliances, a program for auxiliaries in orthodontics and table clinics will be featured. Contact: International Association for Orthodontics, 211 East Chicago Ave., #915, Chicago, Ill. 60611 USA.

September 19-22: The 4th International Symposium on Ceramics, Hyatt Regency O'Hare, Chicago, Illinois. Sponsored by Quintessence Publishing Co. Inc. Symposium topic: "Current Perspectives in Dental Ceramics." Contact: Quintessence Publishing Co. Inc., 8 South Michigan Ave, Chicago Ill. 60603, 312-782-3221.

September 20-27: Annual meeting of the Canadian Society of Forensic Science jointly with the **Society of Forensic Toxicologists** and the **American Society of Questioned Document Examiners**, Hyatt Regency Hotel, Montreal, Quebec. Contact: Executive Secretary, Canadian Society of Forensic Science, 2660 Southvale Cres., Suite 215, Ottawa, Ont., K1B 4W5, 613-731-2096.

September 21-27: 1985 Congress of the Federation Dentaire Internationale is being held in Belgrade, Yugoslavia.

September 26-28: Canadian Academy of Prosthodontics annual meeting at the

Westin Hotel, Ottawa, Ont. Contact: Dr. B.M. Jackson, 22 Water St. S. Kitchener, Ont. N2G 4K4.

September 26-28, 1985 — Annual meeting of the Canadian Academy of Restorative Dentistry; Westin Hotel, Ottawa, Ontario. Contact Dr. Harold Beach, 225 Metcalfe Street, Suite 504, Ottawa, Ontario K2P 1P9.

September 26-28: The Northeast Canadian/American Health Council Sixth Biennial Conference, Hartford Marriot Hotel, Farmington Connecticut. Topic: "Navigating Troubled Waters: An Opportunity for Innovation in Health Care." Contact: Mr. Wayne L. Carew, Sixth Biennial Conference, Public Relations Chairman, (Canada), Executive Director, Prince County Hospital, 259 Beattie Ave., Summerside, PEI, C1N 2A9, phone 902-436-9131.

September 26-29: American Dental Assistants' Association 61st annual session, Hyatt Regency, Chicago Illinois. Contact: AADA 666 N. Lake Shore Dr. Suite 1130, Chicago Ill. 60611 or call 1-800-621-6713.

September 27-29: Canadian Academy of Endodontics annual meeting, Ottawa Ontario, Four Seasons Hotel, Contact: Dr. Lorne Chapnick, 2200 Yonge St., Suite 1009, Toronto, Ont. M4S 2C6.

September 27-29: Fifth International Dental Electrosurgery Conference-Workshop, Grand Island Holiday Inn, Niagara Falls, New York. Contact: Dr. M.J. Oringer, Academy Executive Secretary, P.O. Box 205, Thousand Island Park, New York, 315-482-9592.

September 28-29: International Association for Orthodontics — Quebec Chapter — is sponsoring Dr. Donald Woodside from the University of Toronto speaking on Functional Appliances. Montreal, Quebec. Contact: Dr. Don Scott 514-932-6322.

September 29–October 1: Annual Meeting of the Association of Prosthodontists of Canada, Four Seasons Hotel, Ottawa, Ontario. Contact: Dr. Donald Kramer, 506-700 Bay Street, Toronto, Ontario, M5G 1E2.

September 29–October 2: Canadian Dental Association national convention. Ottawa, Ontario, at Canada's Capital Congress Centre. Contact: Canadian Dental Association, 1815 Alta Vista Dr., Ottawa, Ont. K1G 3Y6.

OCTOBER/OCTOBRE

October: Golf at Gleneagles, Atlantic Dental Seminars, Gleneagles Scotland, "Comprehensive Adult Dentistry". Contact: Course Director (North America) 1545 Birmingham St., Halifax, N.S., B3J 2J6.

October 8-12: Austrian Dental Congress, Graz, Styria, Austria. Contact: Styrian Dental Surgeons and Dentists Association, Univ.-Zahnklinik, A-8036, Graz -LKH, Austria.

October 13-18: 6th Congress of the International Society for Laser Surgery and Medicine. Organized by the Israel Society for Laser Surgery and Medicine. Jerusalem, Israel. Contact: DIT Travel/Convention Division, 1183 Finch Avenue West, Suite 203, Downsview, Ontario M3J 2G2, Attention: Rifka Boruchowicz, Convention Secretariat, phone 416-663-9100/07.

October 30: The first national and international scientific encounter of the dental schools, during the XVIII National and International Congress of the Mexican Dental Association. Contact: Admgen Ezequiel, Montes 92, Mexico, D.F., 06030 Mexico 915-566-61-33.

October 31–November 2: The 6th International Conference for Orthodontics, Sheraton Hotel, Munich West Germany. Sponsored by Quintessence Publishing Co. Inc. Theme: Adult Orthodontics and Orthognathic Surgery. Contact: Quintessence Publishing Co. Inc. 6 South Michigan Ave, Chicago Ill. 312-782-3221.

NOVEMBER/NOVEMBRE

November 2-5: 126th Annual Session of the American Dental Association, San Francisco California. Contact: The American Dental Association, 211 East Chicago Ave., Chicago Ill., 60611 U.S.A.

November 7-9: First International Beijing (Peking) Symposium in Dentistry and First International Dental Trade Show. Inaugural theme will be dental materials and their clinical use. Contact: Quintessence Publishing Co. Inc., 8 S. Michigan Ave., Suite 2301, Chicago ILL. 60603, U.S.A. Telephone (800) 621-0387.

November 18-21: American Dental Association, Foods Nutrition and Dental Health Program in co-operation with the University of Texas, Health Science Centre at San Antonio, Dental School, announces a scientific consensus conference on **Methods for Assessment of the Cario-genic Potential of Foods**, University of Texas Health Sciences Centre, San Antonio, Texas. Contact: Dr. Dominick DePaola, Chairman, 7703 Floyd Curl Drive, San Antonio, Texas, 78284, 512-691-6601.

November 22-23: The Professional Development Committee of the Ontario Dental Association will present a symposium on Periodontics in Toronto. Contact: Dr. Jeffrey Goodman, Director of Professional Development, 416-922-3900.

November 28: 1985 Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 30: American Academy of Dental Electrosurgery annual meeting. New York Hilton Hotel. Contact: American Academy of Dental Electrosurgery, 57 West 57th St., Suite 1001, New York, New York, 10019, 212-755-6630.

1986+

January 30–February 2, 1986: Health-Com '86, Las Vegas, Nevada, Las Vegas Convention Centre. Highlights computer, telecommunications and information systems specifically for the healthcare industry. Contact: Lin Fish/Pete Soraparu, Fleishman Communications Inc. 312-397-7744.

April 7-12 1986: 23rd International Dental Show and German Dentists'

conference in Cologne, Germany. Contact: Messe-und Ausstellungs-Ges. m.b.h. Koln, Messeplatz, Postfach 210760, D-5000 Koln 21 (Deutz) West Germany.

May 2-4, 1986: The 2nd International Symposium on Periodontics and Restorative Dentistry. Westin Hotel, Boston Mass. Sponsored by Quintessence Publishing Co. Inc. Contact: Quintessence Publishing Co. Inc. 8 South Michigan Ave. Chicago Ill. 60603 312-782-3221.

May 21-23, 1986: Expodent 1986 Trade Fair and Congress for Present Day Dentistry and Dental Technology. Utrecht, Holland. Contact: Royal Netherlands Industries Fair, Postbus 8500, 3503 RM, Utrecht Holland.

June 26-29, 1986: 10th International Symposium on Dental Hygiene. Oslo, Norway. Scandinavia Hotel. Abstracts must be submitted by **November 1, 1985**, to: The Scientific Committee, 10th International Symposium on Dental Hygiene, P.O. Box 438, 1301 Sandvika, Norway. For more information contact either Inger-Lise Bryhni or Elisabeth Olsen Kolbjornsen at the above address.

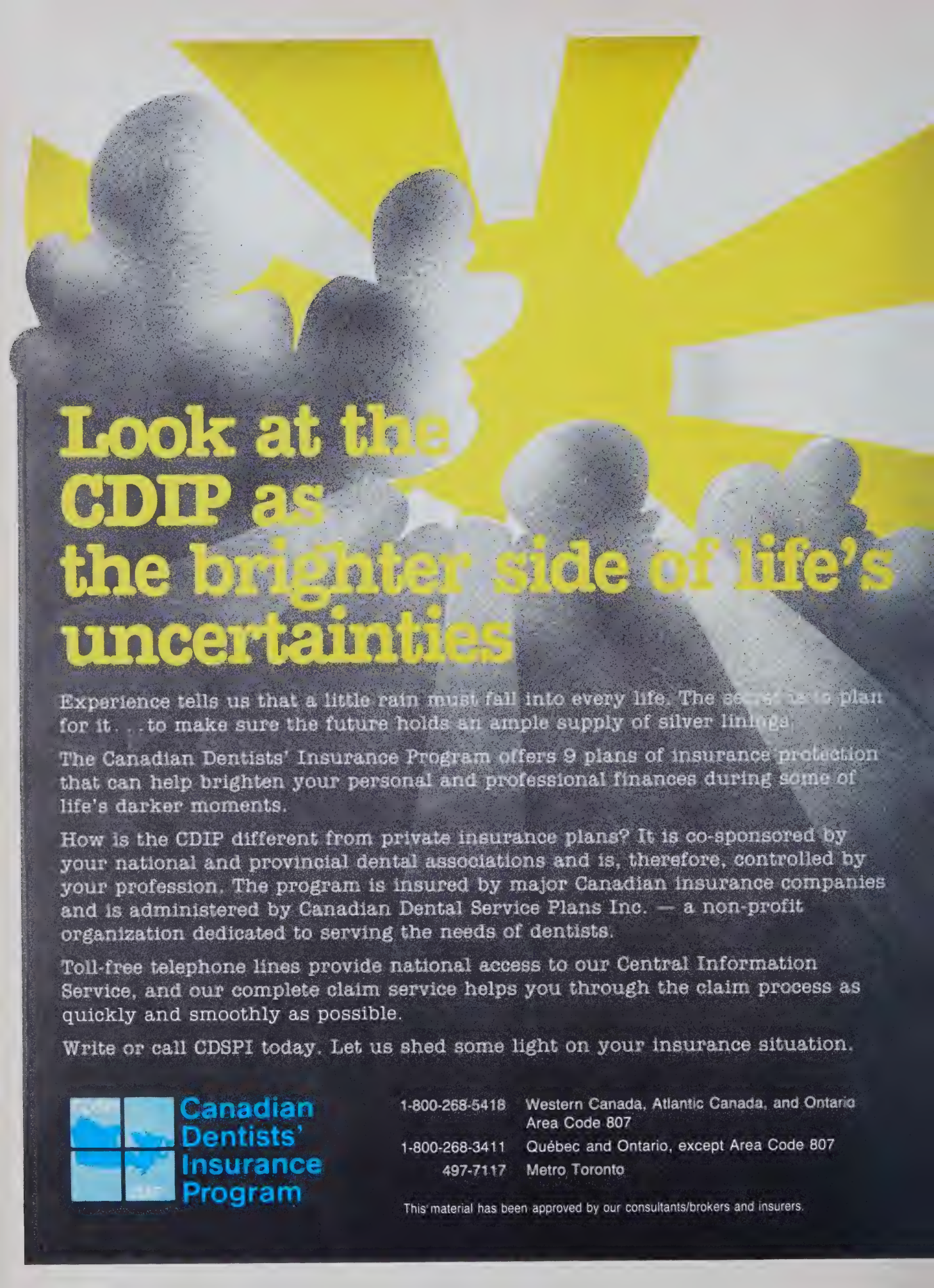
July 1, 1986: Applications are being accepted for the **Postdoctoral program, Dental Diagnostic Science at the University of Texas**, Health Science Center at San Antonio for the class beginning **July 1, 1986**. Address inquiries to: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Centre at San Antonio, 7703 Floyd Curl Dr., San Antonio TX. 78284.

August 24-27, 1986: Canadian Dental Association Annual Convention. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

September 9-12, 1986: International Association of Oral Pathologists in association with the British Society for Oral Pathology — Biennial Congress, Edinburgh, Scotland. Contact: Dr. J.C. Southma, Department of Oral Medicine and Oral Pathology, University of Edinburgh, Chambers St., Edinburgh, Scotland, EH1 1JA.

August 30–September 2, 1987: CDA National Convention, Quebec City, Quebec. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

August 28-31, 1988: CDA National Convention, Edmonton, Alberta. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.



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- Traumatic Injuries of the Face and Jaws in Children.
- Temporomandibular Joint Disorders in Children and Adolescents.

Noni MacDonald, M.D., Children's Hospital of Eastern Ontario, Ottawa, Canada.

- An Update on Hepatitis, AIDS, and their relevance to the dentists and his patients.

Robert Peterson, M.D., Ph.D., Children's Hospital of Eastern Ontario, Ottawa, Canada.

- Nitrous Oxide — A Drug of Abuse.

Malcolm Park, M.D., Ron Ensom, M.S.W., and Arlington Dundy, D.D.S., Children's Hospital of Eastern Ontario, Ottawa, Canada.

- Panel Discussion — Child Abuse Its Detection and Management with Emphasis on the Dentists' Role.

**REGISTRATION AND RECEPTION — FRIDAY,
SEPTEMBER 27, 1985.**

**SCIENTIFIC SESSIONS — SATURDAY, SEPTEMBER 28,
1985 (9:00 A.M. — 5:00 P.M.)**

and

**SUNDAY, SEPTEMBER 29, 1985
(9:00 A.M. — 12:00 P.M.) AT**

THE WESTIN HOTEL, OTTAWA, ONTARIO, CANADA.

Further information or details on registration can be obtained by writing:

Dr. A.F. Dundy, Chairman,
VI Canadian Congress on Dentistry for Children,
c/o Children's Hospital of Eastern Ontario,
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Underserved Area Program
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Toronto, Ontario
M4H 1A9
(416) 963-1176

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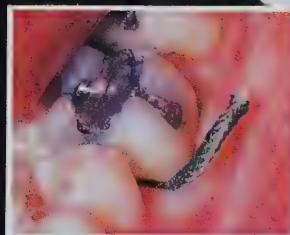
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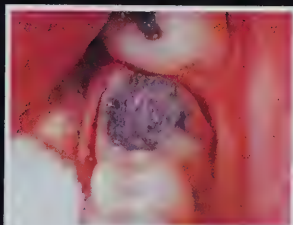
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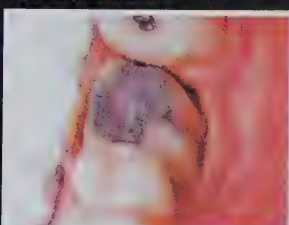
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CANADIAN DENTAL ASSOCIATION

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SCHOOL'S IN

It's September again and school is in for everyone — including dental practitioners.

While the fall season brings back memories of starting a new school year for all of us, this fall's CDA convention should be especially memorable in continuing professional education.

This year's convention offers both a variety of ways to keep current in various aspects of dentistry and an international team of professionals from whom to learn.

There are three ways to continue your education at this year's convention. A group of excellent participation courses is being offered for the first time ever, immediately prior to the convention. Given by various practitioners from the U.S. and Canada, these courses will give convention participants "hands on" experience in a particular, largely clinical, aspect of dentistry. Many of these courses will be given at dental operatories around the city of Ottawa so participants will have the added opportunity to look at local dental set-ups as well as enjoy a learning experience.

The more formal lectures of the Scientific Program will provide delegates with invaluable information from many parts of the world, and from many respected, expert colleagues. Speakers from as close to home as Ottawa and as far away as Melbourne, Australia, will be providing convention attendees with insights into everything from computers to cosmetic dentistry, through the convention's Scientific Program. A special feature of this year's program will be the Royal College of Dentists of Canada's Symposium on Facial Pain, a subject of interest to academics and clinicians alike.

While formal lectures are generally considered to provide more of an educational atmosphere, there is one more way in which delegates can become better informed. The table clinic presentations at any convention have always proved to be popular. The popularity is usually due to the totally practical aspects of the presentations. Table clinics are designed to give the practising dentist an idea of what is going on in day-to-day practices across Canada, or, in the case of table clinics presented by students, of what might be going on in the near future.

Practical, informative and short, the table clinic presentations at this year's CDA convention will give delegates a quick education or a taste for a more detailed education in a certain area of dental practice. There will be 20 table clinics presented at the convention, as well as 10 student table clinics. Featured topics include xerostomia, geriatric dentistry, clinical photography, practice management and marketing, anaesthesia and periodontal therapy.

Continuing education is an important part of any professional's career. An annual convention is a fun, relatively relaxed and easy way to become informed on a new subject of interest or stay informed on a favourite one.

With three different avenues for continuing education available at this year's CDA convention, there is no reason not to learn.

This month in Ottawa, school is definitely in.

*Carolyn Hackland
Editor, JCDA*

AMENDMENTS TO RADIATION EMITTING DEVICES ACT

by: P. Dvorak, X-Ray Section,
Radiation Protection Bureau
Department of National Health
and Welfare, Ottawa, Ontario

1. Introduction

Devices capable of producing and emitting electromagnetic or acoustical radiation are subject to the Radiation Emitting Devices (RED) Act and Regulations promulgated under this Act. In the dental office, the RED Act applies to a number of devices, from X-ray units to ultraviolet polymerizers to ultrasound cleaners. On September 1, 1984, amendments to the RED Act were proclaimed. These amendments have legal implications not only for suppliers of equipment covered under the RED Act, but also for individuals who modify, sell or import such equipment. The changes that are most likely to affect individual dentists or have an effect on their dealings with equipment suppliers are outlined below.

2. Broader Applicability of RED Act

The applicability of RED Act was extended to include:

- all devices capable of producing and emitting radiation, regardless of frequency
- any component of or accessory to a radiation emitting device

The RED Act does not apply to radioisotope-based devices subject to the Atomic Energy Control Act.

While previously the RED Act applied only to devices for which specific regulations existed at the time of manufacture, it now covers all radiation emitting devices, both new and used, at the time of sale. This means that any person selling, leasing or importing such a device must ensure that it

- 1) complies with the standards, if any, promulgated under the RED Act
- 2) does not create a radiation risk by reason of the fact that it
 - a) does not accomplish its claimed purpose or does not perform as claimed, or
 - b) emits unnecessary radiation

In addition, the RED Act now contains a clause explicitly prohibiting the provision

of deceptive or misleading information on equipment design, construction, performance, intended use, character, composition, merit or safety.

For an individual dentist the major changes are:

- when acquiring a new or used radiation emitting device, the buyer is protected against both misleading or fraudulent advertising and non-compliant or hazardous equipment
- when selling a device that is subject to RED Act or importing such equipment purchased abroad, the owner must ensure that all requirements of the RED Act and Regulations have been met.

3. Notification

A requirement for notification has been included in the Act. If a potential radiation hazard or lack of compliance with an applicable Regulation is found for a certain model of device, the manufacturer or importer must notify the Minister of National Health and Welfare of this fact and, if directed by the Minister, he must also notify such persons as the Minister requires. Typically, this means that the manufacturer or importer must find and notify all users of devices of the non-compliant model.

4. Responsibility for Enforcement

The responsibility to meet the requirements of the RED Act and Regulations rests with the manufacturer, importer and seller. Compliance is enforced on the federal level by the Health Protection Branch of the Department of National Health and Welfare, in close cooperation with radiation protection agencies of individual provinces.

For more details on the legal aspects of the RED Act and Regulations please contact:

Legislative and Regulatory Processes
Environmental Health Directorate
Tunney's Pasture
Ottawa, Ontario
K1A 0L2

The text of Regulations and advice on technical aspects of the enforcement of the RED Act and Regulations can be obtained by writing to:

X-Ray Section
Radiation Protection Bureau
Health Protection Building
Tunney's Pasture
Ottawa, Ontario
K1A 0L2

for X-ray equipment and accessories, and to:

Non-Ionizing Radiation Section
Radiation Protection Bureau
Environmental Health Centre
Tunney's Pasture
Ottawa, Ontario
K1A 0L2

for equipment emitting all other types of radiation, such as microwaves, UV light or ultrasound.

WESTERN CANADA CONVENTION ATTRACTS WIDE INTEREST

Attracting possibly the largest attendance ever — about 600 — including spouses and auxiliaries, "Saskabash", the 1985 Biennial Convention of the Western Canada Dental Society was termed memorable by most of the delegates.

The gathering, from the four Western Provinces — Manitoba, Saskatchewan, Alberta and British Columbia, met at the Bessborough Hotel in Saskatoon for educational sessions, entertainment, dining, fellowship and friendship, which included "in home" hospitality hosted by dentists and wives of Saskatoon.

Major speakers

Speakers included Dr. R.K. House, who spoke on "Productivity, Profitability and Opportunity in Dentistry: The Private Eco-



Dr. George H. Peacock

nomics of Dental Practice", and Dr. Harry Rosen, Professor in the Faculty of Dentistry, McGill University, Montreal, who spoke on "Trouble Shooting, Problem Solving and Work Simplification in Crown and Bridge Prosthodontics."

The Hon. Graham Taylor, Saskatchewan's Minister of Health, flew in from Regina to be guest speaker at the Government Luncheon.

In a somewhat different vein, the presentation "Sex is a Thirteen Letter Word" attracted an overflow audience. The speakers were Dr. William Chernenkoff and his wife Carolyn, both of whom teach the major portion of the Human Sexuality program for medical students at the University of Saskatchewan. Both have studied with Masters & Johnson in St. Louis, Missouri.

New President

Dr. Steve Yaholnitsky of Yorkton, Saskatchewan, was installed as the President of the Western Canada Dental Society during the Convention. He succeeds Dr. E.G. Derrett of Winnipeg.

Other officers include Dr. Elgin Duke (B.C.) of Surrey, B.C.; Dr. Dick Sandilands (Alberta), of Edmonton; Past-President Dr. E.T. (Ted) Allison, of Calgary, Alta., and Ross McIntyre of Winnipeg, who continues in the post of Secretary-Treasurer.

Dr. Peacock honored

Dr. George Peacock, a Past-President of the Society, Secretary-Treasurer-Registrar of the College of Dental Surgeons of Saskatchewan, and Chairman of CDA's Council on Constitution and By-Laws, was presented with a Life Membership in the Western Canada Dental Society. The honor was for his years of service and support to the Society.

Auxiliaries

The Saskatchewan Dental Hygienists' and Dental Assistants' Associations also had a full program of educational and entertainment activities, and shared in several events.

Their major speaker was Dr. Esther Wilkins Gallagher, BS, RDH, DMD, Associate Clinical Professor, Department of Periodontology, at Tufts University School of Dental Medicine, Boston. She spoke on "Planning the Patient's Treatment - New and Review."

Final convention

Past-President Dr. E.G. Derrett informed the gathering that this would be the last Biennial Convention of the Western Canada Dental Society.

He said that "it is with deep regret" that the Convention "has succumbed to the times."



PRESIDENT'S COLUMN

by Dr. Ralph Crawford

'OF A GOOD BEGINNING COMETH A GOOD END'

Our title this month is a quote from John Heywood, the 16th century collector of proverbs. This month brings to the end my tenure as President of our Association, and also, this is the last edition of my "President's Column."

The past year has been both exciting and challenging. A check into the past year's agenda indicates that almost 100,000 miles of air travel has taken us into 10 provinces to attend provincial meetings; into the U.S.A. and Finland to attend international functions; and visitations to nine of Canada's 10 Dental Faculties. The President attended a total of eighty-six (86) distinct meetings on behalf of the C.D.A.

If asked what were the highlights of the year, the following would quickly come to mind . . .

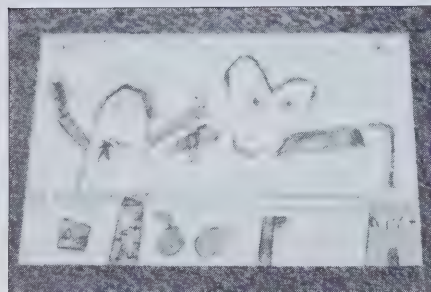
- Dental Awareness Program, with its "Dental Health Good for Life" theme. The launching on April 1 was a benchmark — the beginning of a concerted two-year program. The National Dental Health Month Checkup insert in *Maclean's* magazine brought new oral health awareness into millions of Canadian homes. This initiative *must* continue for years to come.
- The Executive Council retreat at Montebello in October brought strategic planning; a review of goals and objectives, and functional accounting for all future C.D.A. endeavors.
- A Government Relations Program — long overdue, was an offshoot of the strategic planning. This program will ensure improved dialogue, coordination and cooperation, all at government levels.
- The Accreditation system of all dental education structures became more strengthened, more visible, more efficient. We must never allow this responsibility to flag nor falter! It is our sacred trust to the legislators and to the public, that quality dentistry is always assured.
- A Third Party Committee was initiated to allow for smoother relationships between insuring organizations, dentists and patients. Already this new Committee has shown it can operate responsibly and efficiently.
- The "final solution" for the Professional Management Company status with Revenue Canada. Great credit goes to Dr. Robert Hicks, C.D.A.'s invincible, "never-give-up" Taxation Committee chairman.
- The appointment of Mr. Jardine Neilson as the new Executive Director. Presently C.D.A. is reaping the benefit of his great talents.
- A review of the "per diem problem." At long last — with much credit to Dr. Doug Smith and his committee — a set of guidelines was created, that ensure that elected officials, council and committee chairpersons, are suitably and fairly reimbursed for time lost out of the office while serving our Association.
- The initiative to hold a National Symposium on Manpower, October 18-19, 1985. This will be just one of a number of projects to seek definition, delineation, directives and solutions for the world-spreading dilemma of "busyness" (or lack thereof). Disappointments? Yes, there are a few.
- Still, despite dentistry's efforts — 47 per cent of Canada's population do not seek regular dental care.
- Still, despite C.D.A.'s most active, successful past few years, membership in the voluntary provinces of Ontario and Quebec is far short of 100 per cent. It is *very* disappointing that about 3,400 dentists in those two provinces choose a "free ride" on the dues of their fellow dentists toward everything that C.D.A. accomplishes for all Canadian dentists.
- The apathy (and this is potentially disastrous!) of too many dentists. There is always disappointment when less than 10 per cent of the total dentists in a province bother to attend an annual meeting.
- The disappointment when there never seems to be enough money available to strengthen and expand present programs and services; and to initiate much-needed new services. C.D.A.'s dues structure *must* be viewed as a benefit (and not a tax), for all concerned.

Without doubt, for the President, this has been a year of privilege, responsibility and respect . . . such being entrusted to only sixty-five dentists in C.D.A.'s eighty-three-year history. One has to be forever grateful and honored. Much thanks to the editors of the Journal for concern, advice (and admonishment, when required); to the Board of Governors and the Executive Council for loyal support, and most certainly to all the dedicated staff at C.D.A. headquarters. Without all of you, singularly and collectively, the year would have been impossible.

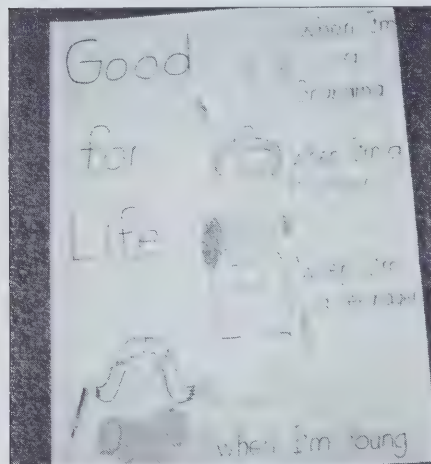
"Every human life is insignificant unless you, yourself, make it great." (Father Athol Murray, 1892-1975, Wilcox, Saskatchewan.)

NATIONAL DENTAL HEALTH MONTH POSTER CONTEST WINNERS

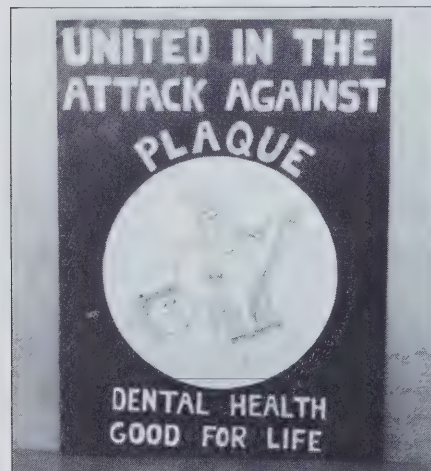
All three prize winners were sent cheques in the amount of \$175 each, to be used toward the purchase of a bicycle.



This poster was first prize winner in the Kindergarten to Grade 1 category. Amy Doary, age 6, is the winner. She attends River Bourgeois School in River Bourgeois, Nova Scotia.



Mary Ann Mose, age 9, won for this poster, in the Grades 2 to 4 category. She attends Baynes Lake Elementary School in Elko B.C. and is in Grade 4.



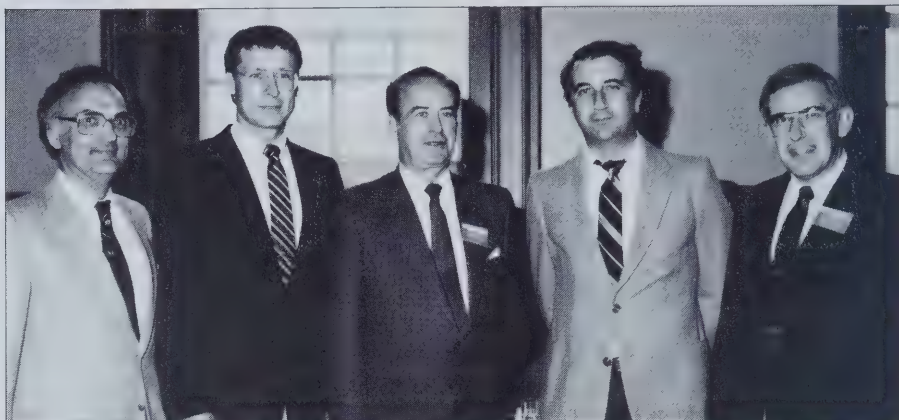
Another Nova Scotian, Patricia Currie, of Bras d'or Nova Scotia, won first prize in the Grade 5 to 7 category for this poster. She attends Grade 7 at Dr. T.L. Sullivan Jr. High School and is age 13.

ATLANTIC PROVINCES DENTAL CONVENTION

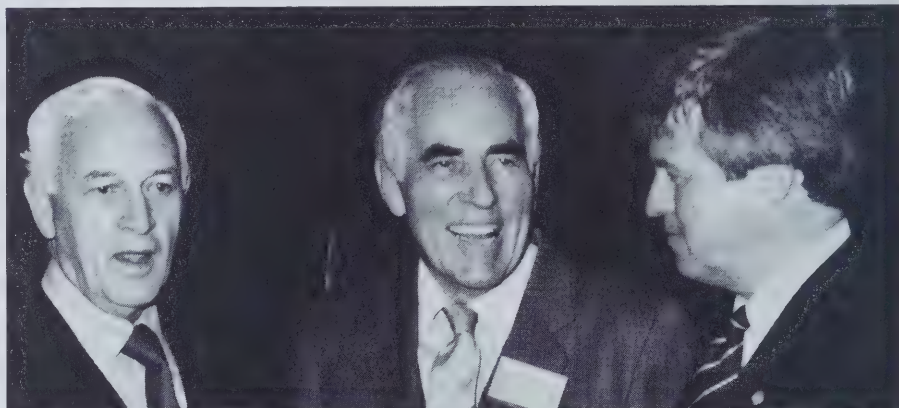
Here are a few scenes from the Atlantic Provinces Dental Convention, held in con-

junction with Dalhousie University's annual Post College Assembly, in Halifax, Nova Scotia, in May.

The Nova Scotia Dental Association played host on the occasion.



The Faculty of Dentistry's Continuing Education Program honored those who have exceptional continuing education attendance records at Dalhousie. Shown from left to right are: Dr. Doug Chaytor, Chairman, Continuing Education Committee, with Gold Award recipients, Dr. Roger Porter, Antigonish, N.S.; Dr. W. Andrew MacKay, President, Dalhousie University, who presented the awards, and Gold Award recipients, Dr. Doug Anderson, Halifax, and Dr. Garry Condon, Kentville, N.S.



Class reunions were a part of the Atlantic Provinces Dental Convention and Dalhousie's Post College Assembly. Dr. Max Sullivan (left) travelled from Australia to join his classmates of 1965. The class established a scholarship in honor of Dr. James D. McLean (centre), who retires this year from the Faculty of Dentistry. Dr. McLean was appointed Dean Emeritus of the Faculty of Dentistry by the Board of Governors of Dalhousie. Dr. Danny Macintosh (right) is a member of the class of '65.



Dr. Brad Holmes, President-Elect, and Dr. Ralph Crawford, President, of CDA, receive greetings and gifts from Dr. George Zwicker, President of the Nova Scotia Dental Association, hosts to the Atlantic Provinces Dental Convention in Halifax.



Some NSDA officials, at a private reception for the CDA President and President-Elect, extol the virtues of a Maritime delicacy — lobster. Left to right are: Don Pamenter, Executive Director of the NSDA; Dr. Elaine Gordon, Convention Social Chairman, and Dr. Bob Furlong, of St. John's Newfoundland.



Mrs. Jane Christie, wife of CDA Governor John Christie, and CDA President Dr. Ralph Crawford, deftly dissect the denizens of the deep, and enjoy the experience.



CDA President-Elect Dr. Brad Holmes, displays the gusto that earned him the title "Rex, the Wonder Stomach" at the NSDA sponsored private reception. CDA Director of Educational Services, Linda Teteruck, on Dr. Holmes' immediate left, examines a claws in her lobster contract.

(The editor thanks Kaireen Vaison, Coordinator of Continuing Dental Education, Dalhousie University, and Mr. Don Pamenter, Executive Director of the Nova Scotia Dental Association, for providing these photographs.)

LIVELY COMPETITION AMONG WOULD-BE HOSTS TO 1993 FDI CONGRESS

Delegations representing the cities of Montréal and Vancouver were on hand at CDA headquarters in Ottawa recently, to extol the facilities and virtues of their respective cities as the possible site for the 1993 Fédération Dentaire Internationale World Dental Congress.

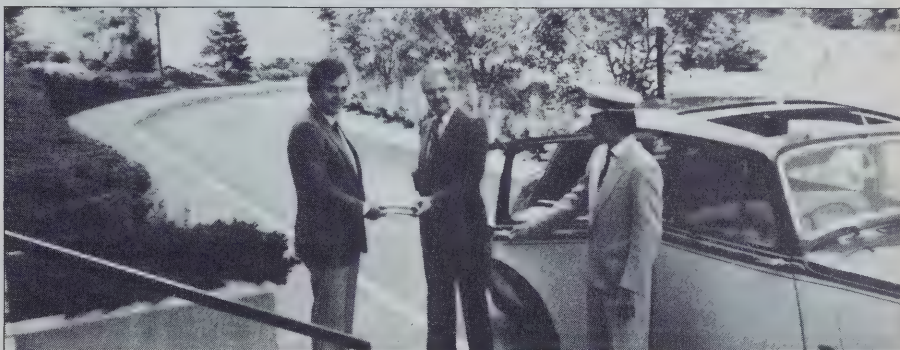
Making the presentation for the Montréal site were Mrs. Elizabeth Boileau, Dr. Claude Chicoine, Dr. Pierre-Yves Lamarche and Dr. Michel Jahjah.

Mr. Ken Croft, Managing Director of the College of Dental Surgeons of British Columbia and Michael Davis, Director of Marketing, Vancouver Trade and Convention Centre, made the presentation on behalf of the City of Vancouver.

The Vancouver delegation described and provided photographs of the impressive Vancouver Trade and Convention Centre complex.

The Montréal delegation made a similarly impressive presentation, and added one finishing touch outside the main entrance to the CDA building — a sleek and luxurious Bentley limousine with fully-livried chauffeur. An FDI 1993 pennant flew from the top of the limousine.

JCDA Associate Editor Clarence Metcalfe recorded some of the activity on film.



Dr. Michel Jahjah, left, and CDA President Ralph Crawford contemplate Montréal as the site for the 1993 Fédération Dentaire Internationale World Dental Conference while they admire the chauffeured Bentley limousine hired by the Montréal delegation to promote their cause.



Vancouver delegates chat with CDA President Dr. Ralph Crawford about the virtues of their city as the possible site for the 1993 Fédération Dentaire Internationale World Dental Conference. At left is Michael Davis, Director of Marketing, Vancouver Trade and Convention Centre, and on the extreme right is Mr. Ken Croft, Managing Director of the College of Dental Surgeons of British Columbia.

DENTAL AWARENESS WORKSHOP HELD

Following a successful National Dental Health Month in April 1985, which also saw the launch of the Dental Awareness Program (DAP) a workshop was held June 7-8.

The workshop's purpose was twofold: to evaluate the National Dental Health Month program and to plan, with provincial representatives, DAP initiatives for 1986.

All 10 corporate members sent representatives to the workshop and all of the 1985 National Dental Health Month chairmen were also in attendance. A large part of the two-day workshop was taken up by presentations by Mark Sarner and Tim Hurson of Manifest Communications, who gave delegates an overview of the DAP objectives and encouraged those in attendance to air their opinions and discuss any problems experienced at the provincial level with either NDHM or the DAP.

At the conclusion of the workshop, the following decisions were made and appropriate action will be taken to carry out the suggestions.

1. National Dental Health Month should be retained as a marketing tool; it should remain in April for 1986 and retain the theme "Good for Life" in some form.
2. Mechanics of ordering and delivering materials will be improved so that materials can be available on a more timely basis.
3. Resources created and provided by CDA will be re-examined to ensure their practicality for national, provincial and local society needs.

4. Evaluation forms will be created so that societies may be surveyed to determine their material and resource needs. Planning workbooks will be provided to provinces to assist in the program planning process.

5. Data provided by the Gallup Poll conducted by Manifest on dental health will be provided to the provinces, once results are complete and tabulated.

6. DAP planning meetings will be held between the provinces and CDA, to assist the provinces in facilitating their DAP programs.

7. The Dental Awareness Program will continue to investigate and develop programs on a national level. A CDA/provincial joint venture advertising program will be investigated.

The photos show some of those in attendance, including members of CDA's Council on Information Services, the Council which has the Dental Awareness Program as part of its mandate.



Delegates are seen listening to the presentations by Manifest Communications speakers.



Following the presentations, delegates are shown writing their evaluations of the workshop.

CANADIAN DENTAL STUDENTS WRITE CHILDREN'S BOOK

Two Canadians, taking their dental training at Case Western Reserve University, Cleveland, Ohio, have written a book for children on the importance of dental care.

Jan and Stan Bohonek, originally from Czechoslovakia, are Canadian citizens from Toronto. The two brothers, known around Case Western's dental faculty as "the Brothers Grin", wrote and illustrated "How Peter Molar Looked for a Smile." The book tells, in simple text, how a lonely tooth, Peter Molar, goes on the road to look for a mysterious something called a "smile" and how he meets other molars, premolars, canines and incisors who join in his effort. At the end of the book, all the teeth help out Granny, who wants to eat a piece of pie, but has nothing to chew it with. The teeth are shown all jumping into Granny's mouth to help her eat the pie. As a reward for their good deed, Granny gives a large smile, and the book ends on the traditional happy note.

"The idea is to help children see their teeth as friends," says Stan, the younger of the two, "If the teeth are friends, the dentist will be a friend too, because the dentist takes care of the teeth."

The two brothers, who each graduated from the University of Toronto with a BSc, also gained an MS in Biology, from Cleveland State University. Besides being interested in children's literature, both are artists, have studied classical ballet and Jan studied piano at the Royal Conservatory of Music in Toronto.

The book, distributed in Canada by Adonis Studio in Toronto, has large, simple illustrations, including a comparison between the primary and secondary dentition at the end of the book, which teaches children the differences between children's and adult's teeth.

The approach of the authors' to dental care for children is appealing for children. Each molar, premolar, canine or incisor has a first name and a last name, and all are doing different jobs in the book. Through the text and illustrations, children learn about the four different types of teeth, their shape, number and function. Through the illustrations, children learn about brushing and caring for the teeth, tooth loss in the elderly and how to best prevent it.

The book is available from
Adonis Studio
Station S, Toronto
P.O. Box 238
M5M 4L7 for \$9.95



Dr. Yosh Kamachi, (left) Chairman of the Council on Information Services, introduces Mark Sarner (right) of Manifest Communications to delegates.

CDA Convention ~ 1985



CDA WILL CONFER HIGHEST HONOR POSTHUMOUSLY, ON LATE DR. LORNE MACLACHLAN

The late Dr. Lorne E. MacLachlan, a distinguished prosthodontist who practised for about 40 years in Ottawa and generously supported both dental and medical research in Canada, will be honored posthumously with the Canadian Dental Association's highest award on Monday, September 30 — Honorary Life Membership.

Dr. MacLachlan, who died recently, was graduated with his DDS degree from the Royal College in Toronto in 1920 and, played an early and major role as an executive of the Canadian Dental Association. He was also an active executive member of the Eastern Ontario Dental Association and the Ottawa Dental Society.

His keen personal interest in dental education was apparent early in his career. Anxious to acquire the latest knowledge available in his profession, he completed his first post graduate course at Northwestern University in 1927. This was followed by special study in oral surgery and full denture prosthesis.

Other post graduate work was completed at the Universities of Montréal, Ohio State, Michigan, Indiana, Tufts, and the Swissegend Foundation.

A colleague has noted that Dr. MacLachlan was equally enthusiastic about passing on his knowledge at seminars, symposia and continuing education events, to "anyone who would listen."

In 1959, he became a Fellow of the American College of Dentists, and was an active member of the American Prosthodontic Society and the American Equilibration Society.

RCDC honor

In 1969, the Royal College of Dentists of Canada conferred that institution's highest honor upon Dr. MacLachlan. His citation read, in part:

"This distinguished gentleman and elder

in our profession has had so many credits and pluses attributed to his name over long years of devoted service, that his name has become a legend across Ontario."

Dr. MacLachlan endowed the faculties of dentistry of four Canadian universities for teacher education in the discipline of dental prosthodontics. Also, he generously supported dental education and research through contributions to the Canadian Fund for Dental Education (CFDE).

His support for medical foundations and other bodies to foster medical research, is well known in Eastern Ontario.

Dr. MacLachlan was also known nationally in a completely different context — wildlife conservation in Canada. His knowledge and work in that field of endeavor was recognized by the federal government.

Residents of a community south of the City of Ottawa will be forever grateful to Dr. MacLachlan in yet another aspect of his community service. A few years ago, he almost single-handedly set about to reorganize and landscape a countryside cemetery. It is now regarded as one of the most beautiful in the Province of Ontario.



The late Lorne E. MacLachlan, DDS, FACD, FRCD(C)

DISTINGUISHED SERVICE AWARD FOR DR. ART WOOD

Arthur W.S. Wood, DDS, Dip. Paedo, FRCD(C), the Islington, Ontario, paedodontist who has devoted 33 years to the development, production and testing of protective devices for young athletes in Canada, will receive the Canadian Dental Association's Distinguished Service Award at a special luncheon ceremony during the CDA Convention.

Dr. Wood, a graduate of the University of Toronto's Faculty of Dentistry in 1943 has devoted most of his personal time to eliminate what he considered unnecessary sports injuries suffered in contact sports activity.

Since 1970, Dr. Wood has been Canadian dentistry's spokesman as a member of the Canadian Standards Association's Technical Committee for Evaluation of Protective Equipment for Athletes. The committee was formed that year, and Dr. Wood, along with his alternate, Dr. Franklin Pulver of Toronto, continues to serve.

That committee was formed largely because of Dr. Wood's criticism of the



Dr. A.W.S. Wood

quality, or lack of it, in sports protective equipment then on the market.

Began crusade in 1952

Long before the committee was formed, Dr. Wood began his personal mission, when as the coach of a team of youngsters in a Toronto Metro area minor hockey league, he was appalled at the frequency of head and mouth injuries suffered each season.

Not one to let someone else solve the problem, Dr. Wood accepted the challenge personally. The basement of Dr. Wood's home became the research and development centre, where he, with a colleague who was an engineer and researcher at York University, studied the nature of sports hazards. They designed and actually made, protective devices for the head and mouth regions. They then tested the devices under actual game conditions.

In recognition for his devotion to his cause, Dr. Wood was named a member of the Mississauga, Ont., Hockey Hall of Fame.

His most notable achievement of international significance, was his substantial role in the development of a head form, in the exact proportions of the head of an average 10-year-old boy. Dr. Wood and his colleagues have been praised by colleagues concerned with protective equipment in many countries, because the model, for the first time, permits technically effective testing of sports protection equipment.

Prominent paedodontist

A prominent member of his own special field, paedodontics, Dr. Wood has served as president of the Canadian Society of Dentistry for Children and the Canadian Academy of Paedodontics. He was a founding member of the Academy of Sports Dentistry, and a member of that international body's executive council.

He is a familiar figure at symposia and as a speaker on the subject of sports dentistry.

DR. BRAD HOLMES IS CDA PRESIDENT-ELECT

Dr. Bradley W. Holmes, a private practitioner in Kenora, Ontario, and a past president of the Ontario Dental Association, will be installed as the 66th president of the Canadian Dental Association at the CDA Convention in Ottawa.

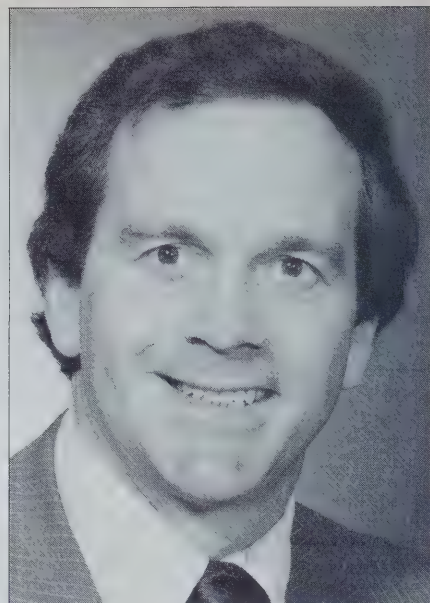
A graduate of the University of Toronto Faculty of Dentistry in 1965, Dr. Holmes has maintained his private practice in Kenora for the past 15 years. He served his internship at the Michael Reese Hospital and Medical Center in Chicago.

He has served as an Ontario representative on the CDA Board of Governors since 1981. In his role as a CDA Executive Council member, Dr. Holmes has served as a liaison to various CDA councils, including Student Affairs, Education, Hospital Services, Constitution and Bylaws and Membership. He also served as a member of the Ad Hoc Committee on Hospital Services.

From 1970 to 1979, Dr. Holmes was a Governor of the Ontario Dental Association, and in 1977, was elected to that body's Executive Council. In the 1980-81 term, he was President of the Ontario Dental Association.

He has served as a member of the Kenora-Rainy River Dental Society, the Winnipeg Dental Society, the Chicago Dental Society, the Pierre Fauchard Academy, the International College of Dentists and the Academy of Dentistry International.

A keen sportsman, Dr. Holmes enjoys fishing, hunting, skiing and boating.



Dr. Bradley W. Holmes

CDA CONVENTION HOTELS

The following table lists the hotels with blocks of rooms for CDA Convention delegates. For hotels in downtown Ottawa and their exact locations, refer to the map of the downtown area.

HOTEL	LOCATION	PHONE
Westin Hotel*	Colonel By Drive	560-7000
Chateau Laurier*	1 Rideau Street	232-6411
Four Seasons	150 Albert Street	238-1500
Skyline	101 Lyon Street	237-3600
Holiday Inn (Ottawa Centre)	100 Kent Street	238-1122
Holiday Inn (Market Square)	350 Dalhousie Street	236-0201
Delta	361 Queen Street	238-6000
Roxborough	127 Metcalfe Street	237-5171
Lord Elgin	100 Elgin Street	235-3333
Plaza de la Chaudière	2, Rue Montcalm, Hull	778-3880*
*CDA Headquarters Hotels	(*Area Code 819)	AREA CODE 613

1985 CDA/DENTSPLY STUDENT CLINICIAN PROGRAM

NAME	SCHOOL	CLINIC TITLE
Miss Colleen H. Holland	Dalhousie University	The "Cracked-Tooth Syndrome" — A Pain!
Mr. Marc Bélanger	Université Laval	Lichen Plan Erosif
Mr. Peter Brawn	McGill University	Computer Assisted Orthodontic Diagnosis and Treatment Planning: A system for the Practitioner
Mr. Jean Yves Sirois	Université de Montréal	Prevention des Endocardites Infectieuses
Mr. Mark Hare	University of Toronto	Effect of Ambient and Enamel Fluoride on Experimental Caries in Man
Mr. Robert Bizley	University of Western Ontario	Processed Bases for Removable Prosthodontics
Mr. Robert James G. Piedalue	University of Manitoba	Computer-Assisted Mandibular Kinesiography
Miss Patricia Allewell	University of Saskatchewan	Endosonics versus Conventional Irrigation
Miss Jacqueline Chudiak	University of Alberta	Abrasion Resistance of Composites
Mr. Kenneth H. Poznikoff		
Mrs. Sharon T. Lord	University of British Columbia	Malignant Hyperthermia

TABLE CLINICS

All table clinics will be held Monday, September 30, 1985 from 2:00 to 5:00 pm, in Lecture Room C, Capital Hall Level of the Ottawa Congress Centre.

TOPIC	CLINICIAN
Maintenance after Periodontal Therapy	Dr. M. Fitch, Dalhousie University, Halifax
Lateral Sliding Flap for Gingival Recessions	Dr. H. Stein Halifax, Nova Scotia
A Simplified Procedure for the Removal of Failed Fixed Bridgework	Dr. J.K. Higa, West Vancouver, B.C.
<i>In Vivo</i> Remineralization/Demineralization of Artificial White Spots under three test Regimens	Dr. P.A. Hayes, University of Iowa, U.S.A.
Geriatric Dentistry	Dr. M.R. Lang, Montreal, Quebec
Electro Acupuncture and Bioelectric Functions Diagnosis	Dr. M. Prenziau, Beamsville, Ontario
The Effectiveness of Mandibular Infiltration in Children using the Local Anaesthetic "Ultracaine" (Hoechst)	Dr. S. Schwartz, Dr. A. Dudkiewicz McGill University, Montréal
Clinical Evaluation of Posterior Composite Restorations — one and three year results	Dr. A.S. Richardson, University of British Columbia
Osseointegrated Implants — An Alternative to Conventional Prosthodontics	Dr. J.F. Cox, University of Toronto, Ontario
Clinical Photography in the Dental Practice	Dr. R.M. Goodlin Aurora, Ontario
Mobile Dental Clinic	Dr. R.L. Ellis, Mrs. F. Ingham University of Alberta
The Latest Word on Non-Surgical Periodontal Therapy	Dr. J-M. J. Vincent Ottawa, Ontario
Successful Fixed Prosthodontics — A Shared Responsibility	Dr. J. Ross, Dr. W. Shewchuk, Ms. B. Gregory, Ottawa, Ontario
Computer Systems in Dentistry: "Menus for Management and Marketing"	Dr. W.R. Reesor, Ottawa, Ontario
Variation in Anatomy of Endodontically Treated Teeth	Dr. I.F. Goodin, Ottawa, Ontario
Electromyographic Activity of the Anterior Temporalis and Masseter Muscles	Dr. D.H. Ross, Ottawa, Ontario
Xerostomia — Age Related Changes in the Salivary Glands	Dr. S. Biswas, and Dr. O. Odum University of Manitoba
Management of the Patient Presenting with a Hemangioma	Drs. Melnik, Mason and Tam, Toronto Western Hospital
<i>Dentify</i> Micro I.D. for Dentistry — The Complete in Office System	Dr. P.L. Samis, Montréal, Québec

MURRAY HUNT LECTURE: September 30

The second annual Murray Hunt Lecture-ship will take place Monday September 30, 1985 at 9:30 am in the Renaissance Room of the Chateau Laurier in Ottawa.

The Lecture, which features as a speaker Dr. Harry M. Bohannon, is being held as a part of the annual meeting of the Canadian Society of Public Health Dentists. The Society is holding its meeting in conjunction with the CDA Convention in Ottawa, September 29–October 2, 1985.

Dr. Bohannon will be speaking to those in attendance on "Results and Implications of the National Preventive Dentistry Demonstration Program." He is a research professor at the School of Dentistry, University of North Carolina, and was a featured speaker at CDA's National Caries Conference held in February.

The Murray Hunt Lectureship began last year in honour of Dr. Murray Hunt, considered by many in the field, to be the father of public health dentistry in Canada. Dr. Hunt, who retired recently from the Department of Community Dentistry at the University of Toronto, where he was a professor, was a respected voice in public health dentistry before his retirement.

The Lectureship has been entirely funded by donations by Canadian public health dentists. Those wishing to donate to the fund in sponsorship of next year's lecture, can do so through the *Dean's office, Faculty of Dentistry, University of Toronto, 124 Edward St. Toronto Ont. M5G 1G6.*

Exan Computer Services

Message Centre
Congress Hall Level
Ottawa Congress Centre
(613) 237-0886

DENTAL ASSISTANTS' PROGRAM

DATE	TIME	EVENT	LOCATION
Saturday, Sept. 28	7.30 a.m. and 12.30 p.m.	Special Event. Whitewater Rafting on the Ottawa River (Extra ticket item)	Departure from the Château Laurier
	9 a.m.	CDAA Board of Directors Meeting	Westin Hotel
Sunday, Sept. 29	9 a.m.	CDAA Annual Meeting	Westin Hotel
	Also 9 a.m.	CDAA-CDHA FUNN RUNN	The Arboretum, Central Experimental Farm, Ottawa.
	10 a.m.	Registration and Information	Ottawa Congress Centre
	2 p.m.	Ottawa City Tour	
	7 p.m.	"Canada on Parade" Reception	Ottawa Congress Centre
Monday Sept. 30	8 a.m.	Registration and Information	Ottawa Congress Centre
	9 a.m.	"Motivational Techniques to Change Health Habits" Marjorie Kort RN, BScN	Château Laurier
	12 Noon	President's Luncheon	Westin Hotel
	2 p.m.	"Memory and Recall" Chuck Eberley	Château Laurier
	8 p.m.	CDHA Monte Carlo Dance "The Las Vegas Swing"	Château Laurier
Tuesday, October 1	8 a.m.	Registration and Information	Ottawa Congress Centre
	9 a.m.	"Keeping Your Patients Caries Free" Dr. Herschel Horowitz and Mrs. Alice Horowitz, RDH	Château Laurier
	1.45 p.m.	Report from Working Group on Dental Hygiene Dr. Roger Ellis, Marnie Forgay, Kate MacDonald, Pat Johnson	Château Laurier
	2 p.m.	P & M Workwear Fashion Show	Westin Hotel
Tuesday, October 1	3.30 p.m.	Developing Clinical Practice Standards for Canadian Dental Hygienists — Sheryl Feller, MBA, RDH	Château Laurier
	7 p.m.	The "Bytown Bash"	Palais des Congrès Hull, Québec
Wednesday, October 2	9 a.m.	Breakfast and Walking Tour of Parliament Buildings	Parliament Hill

RESOURCE CENTRE

The Library/Resource Centre is looking forward to meeting with you at Booth 507 at the CDA Convention. Our booth will be adjoining the National Research Council's and terminals will be in place for on the spot computer searching. Please feel free to stop by to meet with us and we will be glad to answer any questions you may have regarding the Resource Centre or to search your dentally related topics. We will also be offering workshops on information retrieval, specifically on MEDLINE each day during

the Convention at 9 a.m., 11 a.m., 2 p.m. and 4 p.m. Sunday, September 29, however, the Workshop will be at 2 p.m. and 4 p.m. only. These sessions will deal with an explanation of the MEDLARS database and will guide you through a search from its inception to an explanation of the finished print-out. For more information please contact the Library/Resource Centre at (613) 523-1770. You may call collect.

SOCIAL PROGRAM

DATE	TIME	EVENT	LOCATION
Sunday Sept. 29	7 p.m.	Registration Party "Canada on Parade"	Ottawa Congress Centre
Monday Sept. 30	12.15 (Noon hour)	CDA Luncheon	Confederation Ballroom Westin Hotel
	7 p.m.	President's Gala Evening Dancing to "Big Band" sound	Confederation Ballroom Westin Hotel
Tuesday, Oct. 1	7 p.m.	The "Bytown Bash" Ottawa Valley lore	Palais des Congrès Hull, Qué.
Wednesday, Oct. 2	12.15 (Noon hour)	Luncheon Speaker: Jack Donahue raconteur	Westin Hotel

PROGRAM — CANADIAN DENTAL HYGIENISTS' ASSOCIATION

DATE	TIME	EVENT	LOCATION
Friday, Sept. 27	9 a.m.	CDHA Board of Directors Annual Meeting and Workshop	Château Laurier
Saturday, Sept. 28	9 a.m.	CDHA Board of Directors Annual Meeting and Workshop	Château Laurier
	7.30 a.m. 12.30 p.m. Departures	Special Event — Whitewater Rafting on the Ottawa River	Departure from Château Laurier
Sunday, Sept. 29	7.30 a.m. Departure 8.30 a.m.	Whitewater Rafting on the Ottawa River	Departure from Château Laurier
		CDHA Board of Directors Annual Meeting	Château Laurier
Sunday, Sept. 29	Also at 8.30 a.m. 9 a.m.	Community Dental Health Hygienists' Workshop	Château Laurier
		CDHA FUNN RUNN	The Arboretum, Central Experimental Farm
	12 Noon 4 p.m. 7 p.m.	Registration and Information Ottawa River Cruise "Canada on Parade" Reception	Château Laurier
Monday, Sept. 30	8 a.m. 9 a.m.	Registration and Information Motivational Techniques to Change Health Habits Marjorie Kort, RN, BScN	Ottawa Congress Centre Château Laurier Château Laurier
	12 Noon 2 p.m. 8 p.m.	President's Luncheon "Memory and Recall" Chuck Eberley CDHA Monte Carlo Dance "The Las Vegas Swing"	Château Laurier Château Laurier Château Laurier
Tuesday, Oct. 1	8 a.m. 9 a.m. to 5 p.m. 9 a.m.	Registration and Information "The Marketplace" Craft Room featuring Ottawa Valley crafts. "Keeping Your Patients Caries Free" — Mrs. A. Horowitz, RDH, Dr. Herschel Horowitz	Westin Hotel Château Laurier

DATE	TIME	EVENT	LOCATION
Tuesday, Oct. 1	12 Noon	Luncheon	Château Laurier
	1.45 p.m.	Report from Working Group on Dental Hygiene. Dr. Roger Ellis, Marnie Forgay, Kate MacDonald, Pat Johnson	Château Laurier
	3.30 p.m.	Developing Clinical Practice Standards for Canadian Dental Hygienists — Sheryl Feller, MBA, RDH	Château Laurier
Wednesday, Oct. 2	7 p.m.	The "Bytown Bash"	Palais des Congrès, Hull, Qué.
	8 a.m.	Registration and Information	Château Laurier
	9.30 a.m.	Brunch	Skyline Hotel
	10.30 a.m.	Dental Hygiene Papers Barbara Zier and Charla Lautar-Lemay	Skyline Hotel
	11.30 a.m.	"How Can We Meet the Needs of the Geriatric and Handicapped Patient in Canada?" Panellists: Alice Horowitz, Pat Johnson, Jenny Thomas, Dr. Roger Ellis	Skyline Hotel

SPOUSES' PROGRAM

DATE	TIME	EVENT	LOCATION
Sunday, Sept. 29	10 a.m.	Registration and Information	Ottawa Congress Centre
	12 Noon	Official Opening of Exhibit Area	Ottawa Congress Centre
	7 p.m.	Registration Party: "Canada on Parade"	Ottawa Congress Centre
Monday, Sept. 30	7.30 a.m.	Wake up Workout 45 Minutes (Numbers will warrant)	Westin Hotel
	8 a.m.	Registration and Information	Ottawa Congress Centre
	9.30 a.m.	Bus Tour of the Nation's Capital	
	12.15 p.m.	Luncheon and Fashion Show	National Arts Centre
	7 p.m.	President's Gala Evening (Additional ticket item)	Westin Hotel
Tuesday, October 1	7.30 a.m.	Wake up Workout (45 minutes) (Numbers will warrant)	Westin Hotel
	9 a.m. to 4.30 p.m.	Tours (Limited numbers) House and Garden Tour and Luncheon. Visit five prominent Ottawa homes and embassies.	
	9.30 a.m. to 4 p.m.	Lanark County Tour. Lunch at country church. Leisurely drive through picturesque countryside in all its autumn splendor.	
	7 p.m.	Bytown Bash	Palais des Congrès Hull, Québec
Wednesday, October 2	7.30 a.m.	Wake up Workout (45 Minutes) (Numbers will warrant)	Westin Hotel
	Morning Free 12.15	Luncheon with Delegates	Westin Hotel

Spouses' Registration also includes access to all open scientific sessions and exhibits. A hospitality suite will be open throughout the Convention

CDA CONVENTION '85 EXHIBITORS

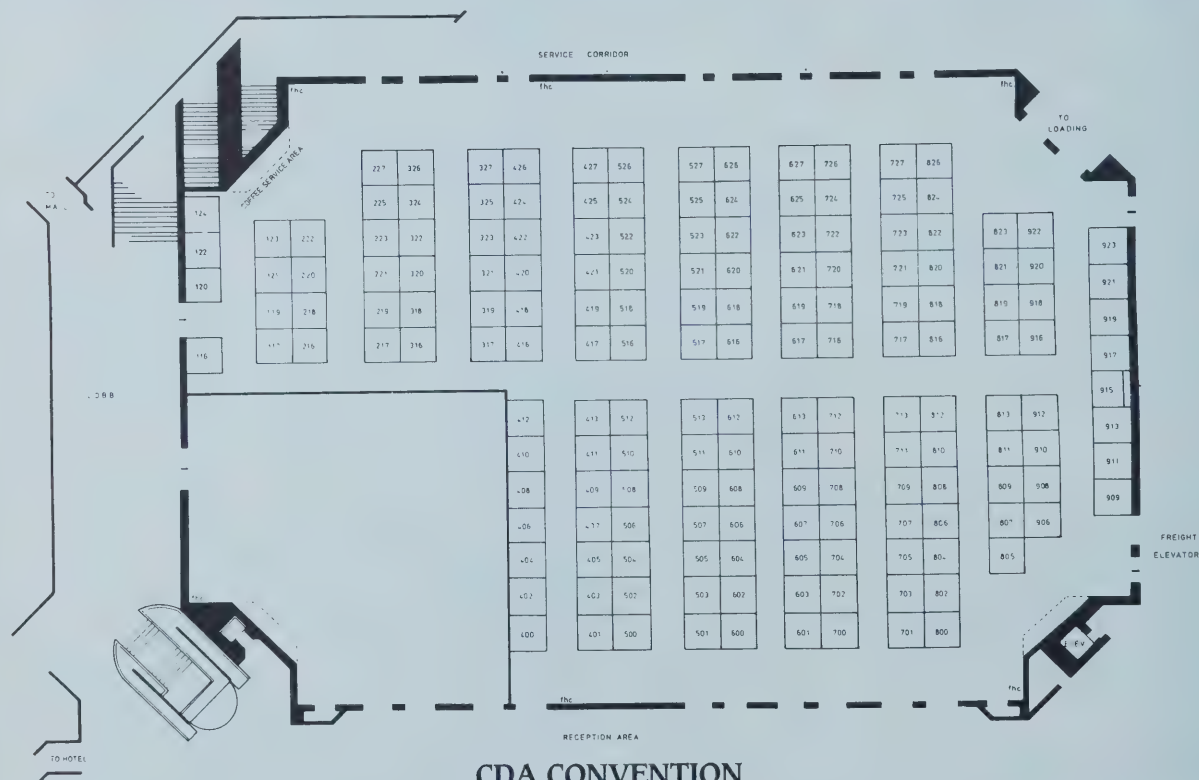
COMPANY NAME	BOOTH NUMBER	COMPANY NAME	BOOTH NUMBER
3M CANADA INC.	709 711 713	HU-FRIEDY MFG COMPANY	909
A-DEC INC	512	INSTITUT DENTAIRE	
AMADENT/AMERICAN MEDICAL & DENTAL CORP	120	INTERNATIONAL	808
ASH TEMPLE LTD	805 807 809 811	INTER-DENT INTNL SUPPLY CO OF CANADA	607
BEECHAM CANADA INC	915	INTER-UNITEK CANADA LTD	906 908
BELMONT TAKARA COMPANY CANADA LIMITED	617 619 716 718	IVOCLAR-VIVADENT CANADA INC	517
BENSON MEDICAL INDUSTRIES INC.	405	JOHN O BUTLER COMPANY	419
BEUTLICH INC	416	JOHNSON & JOHNSON (HEALTH PRODUCTS)	604
BLOCK DRUG COMPANY	401 403	JOHNSON & JOHNSON INC DENTAL LAB PRODUCTS	600 602
BOFORS NOBELPHARMA CANADA INC	810	K & M CAPITAL DENTAL LABORATORY LTD	521
BRASSELER USA, INC	504	KERR CANADA	423
BUDGET DENTAL SUPPLIES	509	KODAK CANADA INC	418
C & B DENTAL LABORATORIES	223	LUX & ZWINGENBERGER LIMITED	221
C D CHARLES INC	519	MASEL ORTHODONTICS INC	700
C V MOSBY CO LTD	122	MCNEIL CONSUMER PRODUCTS COMPANY	324
CANADIAN DENTAL SERVICE PLANS INC	400 402	MEDI-DENT SERVICE	217 219
COLGATE-PALMOLIVE CANADA	501 503	MEDICAL ADMINISTRATION INC	913
COLUMBUS DENTAL	813	MERRELL DOW PHARMACEUTICAL	812
COMPUTER UTILITY MANAGEMENT LIMITED	420	MODULAR & CUSTOM CABINETS	605
COOK-WAITE LABORATORIES	316 318	NATIONAL RESEARCH COUNCIL CANADA	505
DATAMATION	320 322	NOBILUM CANADA INC	413
DDS COMPUTER SYSTEMS INC	620	NORTEC AIR CONDITIONING	422
DE LUCA DENTAL LABORATORIES	806	NORTH PACIFIC DENTAL/ ASEPTICO	426
DEN-TAL-EZ/SYNTEX DENTAL PRODUCTS INC	404 406	NOVOCOL-BUFFALO DENTAL CANADA	516
DENAR CORPORATION	520	ORAL-B LABORATORIES INC	616 618
DENCIS COMPUTER SYSTEMS LTD	800 802	ORTHO ORGANIZERS	225
DENCO, DIVISION OF SYBRON CANADA LTD	817 819 916 918	ORTHO-DENT LABORATORIES	922
DENT-ART	920	ORTHORUM ENRG	220 222
DENTAL DEPOT CANADA LTD (HEALTHCO)	117 119 216 218	O'RYAN DISTRIBUTING	702
DENTSPLY CANADA LTD	704 706 708 710 712	PENGUIN MANAGEMENT SYSTEMS INC	910
DURO-TEST ELECTRIC LTD	606	POSEN & FURIE DENTAL LABORATORIES LTD	506
ENCYCLOPAEDIA BRITANNICA	411	PREMIER DENTAL (CANADA) INC	522
EXAN COMPUTER SYSTEMS & SERVICES LTD	816 818	PRO-MAR PRE COLLECTION SERVICES INC	921
EXPRESS DENTAL SUPPLIES	325	PROCTER & GAMBLE INC PROFESSIONAL	701 703
FIRST CITY MEDICAL LEASING	522	PHARMACEUTICAL CORP	421
FORCETEN ENTERPRISES INC	608 610 612	PROVIDENT LIFE & COULTER FINANCIAL PLNG	407
FRANK W HORNER INC	611 613	RATHMANN & ST JOHN ORTHODONTIC LABS	707
G.D. SEARLE & CO. OF CANADA LTD	911		
HERDT & CHARTON INC	321		
HOECHST CANADA INC - PHARMACEUTICAL DIV	326		

COMPANY NAME	BOOTH NUMBER
RHONE POULENC PHARMA INC	227
RIDEAU ORTHODONTIC MFG LTD	923
ROCKY MOUNTAIN ORTHODONTICS CANADA LTD	513
SAFEGUARD BUSINESS SYSTEMS LTD.	523
SEAL LAB GROUP (SHAW LABORATORIES LTD)	518
SHOFU DENTAL CORPORATION	409
SIEMENS ELECTRIC LIMITED	121 123
SPACE MAINTAINERS LABORATORIES CANADA	609
STAR DENTAL/SYNTEX DENTAL PRODUCTS INC	408
SYSTEMS BUSINESS FORMS LIMITED	511
TELEDYNE WATER PIK CANADA	508 510
THE CAULK CO OF CANADA	717 719 721
THE PELTON & CRANE COMPANY	601 603
THE PERMANENT	917 919
THE UPJOHN COMPANY OF CANADA	622

COMPANY NAME	BOOTH NUMBER
TORONTO DOMINION BANK — COMMERCIAL DIV	804
TRANS-CANADA DENTAL LIMITED	524
TRI HAWK INTERNATIONAL INC	410 412
UNIDENT LIMITED	317 319
UNIFORM WORLD	116
VAN R DENTAL PRODUCTS INC	424
VMR BUSINESS SYSTEMS LIMITED	820
W B SAUNDERS COMPANY CANADA LIMITED	323
W M DENTAL SUPPLY LTD	821 823
WARNER-LAMBERT CANADA INC	500 502
WHALEDENT INTERNATIONAL	705
WHITEHALL LABORATORIES	327
WILLIAMS GOLD REFINING CO OF CANADA LTD	124
WRIGHT DENTAL CANADA LTD	417
WRIGLEY CANADA INC	912

OTTAWA CONGRESS CENTRE

CENTRE DES CONGRÈS D'OTTAWA



**CDA CONVENTION
CONGRÈS DE L'ADC**
Sept. 29 – Oct. 2

EXHIBITORS

EXPOSANTS

1985

CDA National Convention Registration Form

Name: Miss/Mrs. _____
 Dr./Mr. _____ (Please print for name tag)
 Address: _____
 City _____ Province _____ Postal Code _____
 Telephone No.: _____
 Name of spouse, if registered: _____

CDA Pre-Convention Participation Courses (Sunday, September 29)

Limited attendance courses—please indicate choices in order of priority

Open to registered CDA Convention delegates only

☐ Custom staining of resin restorations	\$250.00	☐ Computerization	\$150.00
☐ Custom staining, porcelain crowns	\$150.00	☐ Clinical photography	\$150.00
☐ Emergency office procedures	\$150.00	☐ Quality Control in X-Rays	\$150.00
☐ Hydro colloid techniques	\$150.00	☐ CPR Course	\$ 50.00
☐ Basic Endodontics	\$150.00		
			\$ _____

Convention Registration (September 29–October 2, 1985)

(Please complete appropriate category)

Dentist

General Practitioner

Specialist _____ (Specialty Group)

	to Aug. 1	after Aug. 1	
CDA Member/foreign dentist	\$210.00	\$250.00	
Non-member	\$260.00	\$300.00	\$ _____

Includes access to scientific sessions & exhibits, three lunches, Sunday registration party and Tuesday Bytown Bash.

Spouse

Dental spouse \$110.00 \$ _____

Includes access to scientific sessions and exhibits, Sunday registration party, Monday fashion show and

lunch, Tuesday tour and Bytown Bash, Wednesday lunch. Indicate tour preference ☐ House & Garden Tour
or

☐ Lanark County Tour.

Wake-up Workout — will participate ☐ Yes ☐ No

Hygiene spouse \$ 50.00 \$ _____

Includes access to scientific sessions and exhibits, sponsored Sunday river cruise (pre-registrants — limited attendance), Registration party/Monday lunch and CDHA Monte Carlo Dance — The Las Vegas Swing.

Hygienist

Full Registration

	to Aug. 1	after Aug. 1	
CDHA Member	\$110.00	\$120.00	
Non-member	\$220.00	\$240.00	\$ _____

Includes access to scientific sessions, and exhibits, sponsored Sunday river cruise (pre-registrants—limited attendance), Registration Party, Monday lunch and Monte Carlo Dance, Tuesday lunch and Bytown Bash, Wednesday brunch.

Daily Registration

CDHA Member	\$ 50.00	\$ 60.00	
Non-member	\$100.00	\$120.00	\$ _____

Day(s) attending _____

Includes that day's scientific sessions, exhibits and luncheon or brunch.

Assistant/Office Personnel

Full Registration

CDA Member	\$100.00	\$110.00	
Non-member	\$130.00	\$140.00	\$ _____

Includes access to scientific sessions & exhibits, Sunday city tour, Registration party, Monday lunch and Casino Night, Tuesday Bytown Bash, Wednesday Breakfast and tour.

Daily Registration

CDA Member	\$ 50.00		
Non-member	\$ 60.00		\$ _____

Day(s) attending _____

Includes that day's scientific sessions, exhibits

Student

Dental — complimentary

Hygiene — complimentary

Assistant — \$ 10.00 \$ _____

Day(s) attending _____

Includes scientific sessions and exhibits only.

Technician

\$ 50.00 \$ _____

Includes scientific sessions and exhibits only.

Other

\$ 75.00 \$ _____

Includes scientific sessions and exhibits only.

Additional Social Tickets

Sunday Registration Party \$20.00 pp \$ _____

Monday President's Gala* \$45.00 pp \$ _____

Monday CDHA Monte Carlo Dance — The Las Vegas Swing \$10.00 pp \$ _____

Tuesday Bytown Bash \$40.00 pp \$ _____

*(not included in Registration package)

Total Amount of Enclosed Cheque \$ _____

Make cheque payable to the Canadian Dental Association and mail to:

1985 CDA Convention

1815 Alta Vista Drive, Ottawa, Ontario. K1G 3Y6

Cancellation Policy: Cancellations are accepted in writing before September 1, 1985 for a full refund. Requests received after that date are subject to a 25% administrative charge.

*Please duplicate and complete this form if more than one registration is required.

HOTEL RESERVATION FORM

Name _____
(Please print or type)

Address _____

City _____ Province _____ Postal Code _____

Telephone No. (Res.) _____ (Bus.) _____

Please Check Appropriate Designation

- ☐ Dentist
☐ Specialist _____
(Please list specialty group)
☐ Hygienist
☐ Assistant/Office Personnel
☐ Exhibitor
☐ Technician
☐ Student
Other (please specify) _____

Type of Room

- ☐ Single ☐ Double ☐ Twin ☐ Triple ☐ Other _____

Indicate first three hotel choices (Rates indicated single/double)

- ☐ Westin (CDA & CDAA Headquarters Hotel) (\$89/\$95)
☐ Chateau Laurier (CDHA Headquarters Hotel) \$85/\$95
☐ Four Seasons (\$85)
☐ Skyline (\$80/\$90)
☐ Holiday Inn, Ottawa Centre (\$80/\$90)
☐ Holiday Inn, Market Square (\$50/\$55)
☐ Delta (\$80/\$90)
☐ Roxborough (\$57/\$62)
☐ Lord Elgin (\$50/\$55)
☐ Plaza de la Chaudière (\$90/\$105)

Arrival Date _____ Time _____ Departure Date _____
Name(s) other occupant(s), if applicable _____

Please Note: A \$75.00 deposit fee is required, payable to the
Housing Bureau, CDA Convention

Please send deposit and hotel reservation form to:
The 1985 Ottawa Convention
c/o Ms Margot Rayburn
Canada's Capital Visitors and Convention Bureau
222 Queen Street, 7th Floor
Ottawa, Ontario. K1P 5V9
Deadline for reservations: August 28, 1985

ACCOMMODATIONS & ATTRACTIONS

- | | | | |
|------------------------------------|--------------------------------|--|----------------------------------|
| A Westin Hotel | 4. Visitors Information Bureau | 17. Rideau Hall | 26. Majors' Hill Park – Noon Gun |
| B Plaza de la Chaudière | 5. National Gallery | 18. Laurier House | 27. Lester B. Pearson Building |
| C Skyline Hotel | 6. Bytown Museum | 19. University of Ottawa | 28. Customs & Excise Exposition |
| D Four Seasons Hotel | 7. Sightseeing Boat Cruises | 20. Supreme Court of Canada | 29. Sparks Street Mall |
| E Château Laurier Hotel | 8. Sightseeing Bus Tours | 21. National Library & Public Archives | 31. Currency Museum |
| F Holiday Inn Downtown | 9. Byward Market | 22. Garden of the Provinces | 32. National Postal Museums |
| G Holiday Inn Ottawa Centre | 10. Canadian Ski Museum | 23. National Museum of Man | |
| H Hotel Roxborough | 11. Nepean Point | National Museum of Natural Sciences | CONVENTION CENTRES |
| J Inn of the Provinces | 12. Canadian War Museum | 24. Centennial Flame | 33. Palais des Congrès |
| K Lord Elgin Hotel | 13. Royal Canadian Mint | 25. Chaudière Falls | 34. Ottawa Congress Centre |
| 1. Parliament Buildings | 14. Ottawa City Hall | | |
| 2. National War Memorial | 15. Rideau Falls | | |
| 3. National Arts Centre | 16. Prime Minister's Residence | | |





10 KM CDHA DENTAL FUN RUN

Sunday, September 29, 1985

9:00 A.M.

ARBORETUM

CENTRAL EXPERIMENTAL FARM

OTTAWA

Entry Deadline Date: September 6, 1985

Entry Fee – \$8.00 (per person)

NAME _____

ADDRESS _____

T-Shirt Size

Men's

Ladies'

☐ S☐ M☐ L☐ S☐ M☐ L

Please make cheque payable to: **The Canadian Dental Association** and
mail along with completed registration form to:

Canadian Dental Association

1815 Alta Vista Drive

Ottawa, Ontario K1G 3Y6

The Canadian Dental Hygienists' Association

Invites you to

COME WHITEWATER RAFTING WITH US

*Plan a day in the Outdoors with Equinox Adventures,
white water rafting on the picturesque Ottawa River
Professional Guides lead you through awesome stretches
of rapids in Hypalon paddle rafts*

The Excursion Includes:

- Chartered bus to from Chateau Laurier
- Lunch on the river bank
- Safety equipment (life jackets, helmets and wet suits)
- Beverage on return bus trip

Cost: \$75.00/Person/per trip

Itinerary

Morning:

Saturday, September 28

Sunday, September 29

Depart Hotel 7:30 a.m.

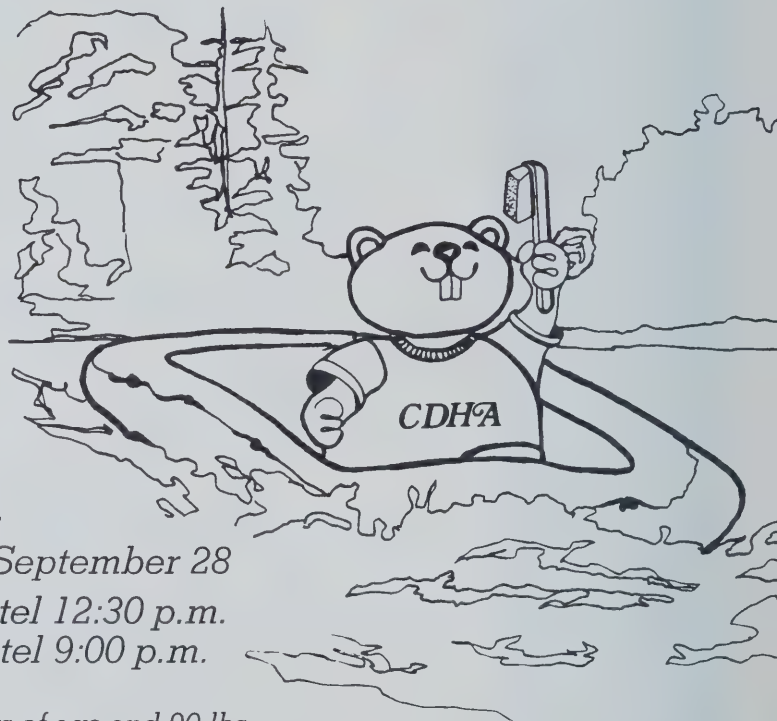
Return Hotel 4 - 5:00 p.m.

Afternoon:

Saturday, September 28

Depart Hotel 12:30 p.m.

Return Hotel 9:00 p.m.



**Note: It is suggested children be at least 12 years of age and 90 lbs.*

Return application with cheque or money order to:

Ms. Sandra Lee, 57 Spruce Street, Ottawa, Ontario K1R 6N8

Make cheque payable to: CDHA (Convention '85)

NAME _____

ADDRESS _____

NO. OF PEOPLE IN PARTY _____ PHONE _____

DAY: SATURDAY _____ SUNDAY _____

TIME: 7:30 A.M. _____ 7:30 A.M. _____

OR 12:30 P.M. _____

FÉDÉRATION DENTAIRE INTERNATIONALE MEMBERSHIP

Membership in the Fédération Dentaire Internationale for 1985 is now open for new or renewed membership. Supporting membership from Canada and attendance at the Helsinki Congress was significant and it is hoped that such support will continue. After the March 1985 issue, only those who renew their membership will continue to receive the Newsletter and in addition, it is necessary to be a supporting member to attend the outstanding Congress planned for Belgrade, Yugoslavia on September 21-27, 1985.

Registrants to FDI world congresses must be supporting members of the Federation. To be eligible for supporting membership, Canadian dentists must be members of the Canadian Dental Association.

The subscription fee is \$35 (Canadian) or in combination with a subscription to the International Dental Journal \$60 (Canadian). We urge you not only to become a member but to encourage your colleagues to join as well.

Your membership fee is your contribution in support of FDI in its efforts to promote improved dental health on a worldwide basis in direct exchange of scientific knowledge and expertise. A portion of the fee will also be used by the CDA to offset administrative expenses associated with the FDI membership program.

Please return the attached form with your remittance without delay to the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6.

CANADIAN DENTAL ASSOCIATION

1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

MEMBERSHIP APPLICATION FÉDÉRATION DENTAIRE INTERNATIONALE

- To develop contacts with dentists from around the world
- To be part of your profession's voice in the international community
- Fees include administration cost, U.S. premiums, CDA representation to FDI

_____ \$35 FDI Supporting Membership will receive the Quarterly FDI Newsletter and Membership Card

_____ \$60 FDI Supporting Membership and Subscription to International Dental Journal

NAME _____ ADDRESS _____

THIS IS NOT A LICENCE FEE, this is your remittance for annual supporting membership.

Please return this form with your remittance payable to CDA. A receipt and membership card will be issued.

A rather ominous article has appeared in "The Medical Post" to the effect that a dentist in a small city in Indiana is reported to have infected eight of his patients with Hepatitis B.

The story indicated that two of the eight patients, women in their forties, reported to have been previously healthy, had died of fulminant hepatitis and a third was suffering from "neurological complications." The others, the article continued, had recovered from the acute phase of the illness, "but remained at risk of severe liver disease or even hepatic cancer in the future."

All cases, the article reported, occurred within a seven month period. "The dentist did not wear gloves and had no history of hepatitis nor did he have any knowledge of Hepatitis B carriers in his practice. After the first three cases of Hepatitis B were reported, the dentist was tested for Hepatitis B surface antigen and found to be positive. He has since stopped practising."

Dr. Keith C. Titley has been appointed Examiner-in-Chief of the Royal College of Dentists of Canada.

His term, which runs for three years, began on January 1, 1985. He replaces Dr. John Stamm, who departed Canada to take a position with the University of North Carolina.

Dr. Titley, who is an Associate Professor in the Paediatric Department of the University of Toronto's Faculty of Dentistry, has

been the Royal College's Chief Examiner in that specialty for eight years.

He is a graduate of Grey's Hospital in London, England, and holds a BDS from the University of London and an LDS and RCS (Eng.) earned in 1967. Dr. Titley earned his diploma in Paediatrics in 1969 from the University of Toronto, and earned an MScD in 1974. He became a Fellow of the Royal College of Dentists of Canada in 1972.

The Canadian Fund for Dental Education (CFDE) has been able to provide, since 1964, over \$2 million to dentistry.

Dr. David K. Peters, Chairman of the Fund said recently that in 1964 the Fund was able to give grants totalling \$5000, and has been able to steadily increase support to dental education over the years. In 1985, over \$200,000 in grants was given by CFDE in support of dental education and research, said Dr. Peters.

The Canadian Academy of Periodontology recently elected a new Executive for 1985-1986.

New President is Dr. Jean Turgeon, of Montreal, Quebec, while President-elect is Dr. Ed Chesko of Vancouver, B.C. Dr. Ken Hershenfield of Willowdale, Ontario, is Secretary and Dr. Edward Hannigan of Halifax, Nova Scotia is Treasurer.

Immediate Past-president of the Academy is Dr. Allen S. Wainberg of Montreal, Quebec. Editor is Dr. Malcolm Miller of Calgary, Alberta.

The University of Manitoba's Faculty of Dentistry has introduced a mobile dental clinic to provide basic dental care, at bedside, to individuals who are unable to visit a dentist's office because of medical disabilities or severe handicaps. The new service was made possible through the donation of a 1985 van and financial assistance from the University of Manitoba's Outreach Fund.

This home dental care program accepts referrals from Winnipeg dentists and physicians as well as from health care institutions and other agencies. Actual services were scheduled to begin in mid-August on a fee-for-service basis.

Dr. Helen P. Glass of Winnipeg, Manitoba, the immediate past-president of the Canadian Nurses Association, was recently elected First Vice-President of the International Council of Nurses (ICN).

Dr. Glass, who is coordinator of the Graduate Program in Nursing at the University of Manitoba School of Nursing, has been involved in the international nursing scene for many years. She has been twice a delegate from Canada to the World Health Assembly and served as a consultant to the World Health Organization's multinational study on nursing.

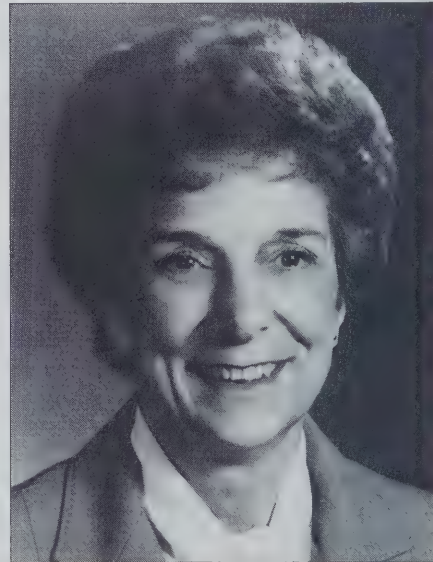
As first Vice-President of the ICN, Dr. Glass will help carry out policies in areas such as primary health care, promotion of "Health for All" by the year 2000, human



Dr. Keith C. Titley



Dr. Jean Turgeon, President of the Canadian Academy of Periodontology



Dr. Helen P. Glass

rights and the socio-economic welfare of nurses in member associations.

ICN is the oldest international organization of health care professionals. The largest member Association is the Canadian Nurses Association.

The chairman of the Health Disciplines Board of Ontario believes that disciplinary hearings involving physicians, dentists and other health professionals should be open to the public.

Hugh Mackenzie recently told a legislative committee of the Ontario government that "once they're charged with an offence, it should be a public matter.

"There has to be more stringent public accounting," he said. "I believe in self-governance. . . people have to see that the system is working."

Commenting on the matter to a Toronto newspaper reporter, Edward Fox, the deputy registrar of the College of Dental Surgeons of Ontario said his college's disciplinary committee publishes the names of dentists convicted of professional misconduct in only about half the cases. He said that "the committee may feel that publishing someone's name could hurt his chances of rehabilitation."

The newspaper stated that Mr. Fox acknowledged that the public may have "an over-riding right to know the names of dentists found guilty of professional misconduct."

Dieticians have been advised they could gain a higher profile if they move into the shopping malls.

Howard Rocket, who has extended the Tridont Dental Centres into 67 different locations in Canada told the dieticians recently he believed health care facilities in malls would soon become commonplace.

At the same meeting of the Ontario Dietetic Association, the president of a dietary consulting business told delegates that physicians, dental hygienists, nurses and others not professionally qualified to be dieticians have been providing consulting services in this area. She said it is frustrating for those who have spent six to eight years in university to earn the qualifications.

Dieticians were very concerned about their profile. A speaker noted that people have no clear idea of where to go when they have a weight problem. At least half the population is overweight, a delegate said, and a large number suffer from high blood pressure and a variety of nutrition-related problems.

The Canadian Dental Association recently honoured some longstanding contributors to its political and administrative life.

Drs. I.C. Bennett, who served on the

Council on Education, Dr. J.M. Gourley, who served on the Council of Dental Materials and Devices; Dr. M.J.R. Leitch, a longtime member of the Board of Governors; Dr. A.E. MacLeod, for six years, Chairman of the Editorial Board and Dr. M. Gornitsky, formerly Chairman of the Council on Hospital Services, all received Certificates of Merit.

The President, Dr. Ralph Crawford has sent out letters of appreciation to eight more members of various Councils and Committees for their work in their respective areas. Dr. E. Busvek, who served on both the Board of Governors and the Council on Education; Dr. G. Anthony, from the Council on Constitution and By-Laws; Dr. R.J. Bell, from the Board of Governors; Dr. R.C. McClelland, of the Council on Ethics; Dr. T.E. Ramage, longtime member of Executive Council, Dr. F. Reid, from the Council on Nominations; Dr. D.L. Thompson, another longtime member of Executive Council and Dr. A. Thivierge, who served on the Council on Student Affairs, all received a letter of appreciation.

A bill introduced in the U.S. Congress recently would ban additives in drinking water "for any purpose other than to render such water safe for human consumption." It states further that no chemical may be artificially added to drinking water except to test such water for contamination or "to improve the taste or clarity of such water."

Although the American Dental Association has been a bit concerned, Washington observers say the bill is getting little support. The sponsoring Congressman had aroused some of this concern with his introductory comments such as stating that the Bill would ensure drinking water is safe — "safe from zealots who would use it to impose on the rest of us their supposed solutions to our private problems."

He had commented further: "if fluorides can be used in drinking water in the name of combatting tooth decay, why not tranquillizers to combat tension or other agents to fight other maladies?"

The American Dental Association has named Thomas Ginley, PhD, as its interim Executive Director, until such time as the ADA search committee has fully evaluated candidates for the position, vacated with the resignation of Dr. John Coady earlier this year.

ADA President Dr. John L. Bomba noted that Dr. Ginley "has many years of administrative and managerial experience in key executive positions at the ADA. I am confident that everyone in the dental community will give him the same support and cooperation Dr. Coady has received during his tenure."

The United Kingdom is tightening restrictions against immigration of general practice dentists and physicians. Such professionals from other countries must now meet immigration requirements for the self-employed. Health professionals entering Britain for other purposes, except post-graduate training, would be subject to normal work permit arrangements. Authorities reported that the steps have been taken to combat a projected surplus of dentists and physicians and to allow the National Health Service to plan more effectively for its manpower use.

Some serious thought is being given to the use of the dental degree "Doctor of Dental Medicine" in the United States — and some dental schools have already made the change from awarding the DDS degree.

A dentist in North Carolina was recently surprised to hear his four-year-old daughter's interpretation of the meaning of his DMD degree.

With no hesitation, she explained "Daddy's my dentist!"

Dentists with a taste for rare books can obtain a rare first edition of *Libellus de Dentibus*, by Bartolomeo Eustachi, published in 1563, for only \$15,000.

The book has 95 pages, and is printed on antique-style vellum. It is the first detailed scientific study of the teeth and is one of the rarest books in the history of dentistry. It has 30 chapters and the author based his work on his own research of the teeth of man and animals. For the book, Eustachi studied not only corpses, but living individuals as well, and adult subjects as well as children.

To order the book, contact Jeremy Norman and Co. Inc., 442 Post St., San Francisco California, 94102-1579 USA. The catalogue to refer to is catalogue number 15. The price of the book is given in U.S. dollars.

Braces may correct dental problems, but may also create some.

A 15-year-old patient in upper Michigan state became one of those other problems.

He had reached the point where he could bear his braces no longer and decided to take drastic measures to have them removed. He ran to his dentist's office with a gun, to force the issue. His dentist refused to yield and the young patient was eventually arrested.

The boy, who had taken along his father's pistol to win a probable argument, burst into the dental clinic in a state of fury. The dentist made a pretense of yielding to the lad's wishes and seated him in the dental chair. While the dentist appeared to be preparing his instruments, his assistant contacted the police.

The police arrived, but the youth's fury erupted again when he realized he'd been duped. He fired his gun toward the floor of the clinic, and then managed to get one of the policeman's guns, and fired again toward the floor. Finally, he was overpowered and carried off to a medical institution for psychiatric tests, then returned to his home.

The lad still has his braces, and his dentist has filed a complaint.

Stress in dentistry? You'd better believe it!

The Royal College of Surgeons of Edinburgh, in Scotland, recently admitted 18 successful candidates for the diploma of FRCSED in Oral and Maxillofacial Surgery.

This was the first time the Part II of the Examination for this diploma had been held. The test is stringent and Sir James Fraser Bt, President of the College, welcomed those who had passed the test.

Is there a relationship between dentistry and religion?

A dentist in Hong Kong appears to indicate this is so.

A traveller in Asia, during a visit to the bustling metropolis noted an interesting sign in a dental clinic window.

The sign read: "Teeth extracted by latest methodists."

Research and development spending in the United States will show a significant increase during 1985, an ADA News report indicates.

The public and private sectors are expected to spend a combined total of about \$109 billion, according to a study by the National Science Foundation's division of science resource studies. If inflation is held to under five per cent over last year, it is estimated real growth in national R & D expenditures can be expected to exceed 1984 by more than seven per cent. This is well beyond the 4.6 per cent annual average increase during the period from 1975 to 1982.

University laboratories are the location of about half of the basic research effort in the United States. The U.S. federal government provides about 70 per cent of the support for academic basic research.

Lifestyle Counterattack II, a health symposium focusing on preventive and lifestyle medicine was held April 14-21 in Vancouver.

Among the topics covered in the eight-day event were cancer prevention, diabetes, prevention of high blood pressure, nutritional fraud, stress management, weight control, alcohol, fitness, marriage nutrition, osteoporosis, sexual health, AIDS and longevity.

For attending the seminars, members of the Alberta Dental Association and The College of Dental Surgeons of Saskatchewan, among other organizations across the U.S. and Canada received professional continuing education credits.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows as at July 26, 1985.

<i>Common Stock Fund</i>	\$98.11523
<i>Fixed Income Fund</i>	\$46.39193
<i>Money Market Fund</i>	\$32.16886
<i>Balanced Fund</i>	\$18.93385

Total assets (market value) of the plan were \$45,783,583.

The previous month's figures, as of June 28, 1985, stood as follows:

<i>Common Stock Fund</i>	\$96.10153
<i>Fixed Income Fund</i>	\$46.22678
<i>Money Market Fund</i>	\$32.00184
<i>Balanced Fund</i>	\$18.75775

Total assets (market value) of the plan were \$45,362,277.

GUARANTEED FUNDS INTEREST RATES

1 year —	9.10%
3 year —	10.25%
5 year —	10.75%

For further information write to: Canadian Dental Service Plans Inc., Ste. 600, 2 Lansing Square, Willowdale, Ontario M2J 4Z3 or call the central information services of CDSPI at 1-800-268-5418 (toll free number for Western Canada, Atlantic Canada and Ontario for Code 807 only, 1-800-268-3411 (toll free number for Quebec and Ontario except Code 807), and 497-7117 (Metro Toronto area).



Today I learned something new from an old friend.

You know, Thelma and I have been best friends since high school. Well, because Thelma is such a close friend, I thought I knew everything about her.

That is, until Thelma mentioned she'd just recently changed her will—to include a bequest for the Canadian Cancer Society.

Thelma said that even though she's always made annual donations to the Society, she wanted to do something extra. Because, she said, cancer can be beaten.

So then I thought, "Cancer *must* be beaten...and leaving a bequest is another good way I can help."

If you or your lawyer want to know more about the Society and what we do, telephone or write the Canadian Cancer Society.

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This space contributed as a public service.

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352 pp; 521 illus (242 in color); ISBN 0-86715-129-3; \$88

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Development, structure, composition, function, and esthetic parameters of each tooth.

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Gnathologic Tooth Preparation

Guides in tooth preparation that will maintain or lead to harmony in the masticatory system.

163 pp; 317 color illus; ISBN 0-86715-121-8; \$68

☐ **Hjorting-Hansen**
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Proceedings of the 8th International Conference on Oral and Maxillofacial Surgery.

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Methods of Makoto Yamamoto

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☐ **Evans/Wetz/Wilko**
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☐ **Stoelinga**
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of the Atrophic Mandible

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☐ **Glazebrook**
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in Dentistry

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☐ **Oral Health Care Systems**

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☐ **Krasse**
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for Assessment and Control

Practical methods for microbial and salivary analysis, and for other methods of caries control.

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☐ **Newman/Goodman**
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Continuing Dental Education

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Newfoundland Dental Assoc. St. John's Nfld. A1C 2H5	St. John's Nfld.	Conservative Operative Dentistry	Operative Dentistry	Nov 15-16 1985	Lecture	Dr. Ronald Jordan	Open	\$125	GPs, Assistants Hygienists	Dr. S.M. Gourley (709) 579-2362
Dalhousie University Halifax, N.S. B3H 3J5	Halifax, N.S.	"An Unconventional Approach to Conventional Prosthodontic Treatment"	Prosthodontics	Sept 13 & 14 1985	Lecture	Drs. Israel Finger & John Shannon	Open	\$185	GPs Specialists Assistants Hygienists Lab. Technicians	Kaireen Vaison (902) 424-2248
Dalhousie University Halifax, N.S. B3H 3J5	Wolfville, N.S.	"Clinical Management of Mandibular Pain & Dysfunction"	TMJ	Oct. 19 1985	Lecture	Dr. Ed Hannigan	Open	\$125	GPs Specialists Assistants Hygienists	Kaireen Vaison (902) 424-2248
Dalhousie University Halifax, N.S. B3H 3J5	Halifax, N.S.	"Treating the Fearful Dental Patient"	Anxiety and Pain Control	Oct. 25 & 26 1985	Lecture	Drs. Peter Milgrom & Philip Weinstein	Open	\$195 (Dentists) \$100 (Aux)	GPs Specialists Assistants Hygienists	Kaireen Vaison (902) 424-2248
New Brunswick Dental Society (Atlantic AGD) Suite 608 100 Arden St., Moncton, N.B. E3B 5W9	Moncton, N.B.	Operative	Dentistry	Nov. 30 1985	Lecture	Dr. Ron Jordan	Open	Not Decided	GPs Auxiliaries	Dr. Steve O'Brien (506) 857-4068
Faculty of Dentistry, McGill University, 740 Docteur Penfield, Montréal, Qué. H3A 1A4	Montréal, Qué.	"Dentistry for the Fearful and Anxious Patient"	Pain Management	Oct. 18 & 19 1985	Participation	Drs. Peter Milgrom & Philip Weinstein	Open	Not Decided	GPs Assistants	Mrs. Olga Chodan (514) 392-4921
Faculty of Dentistry, University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	"Endodontics I —Contemporary"	Endodontics	Oct. 10 1985	Lecture	Drs. B.H. Korzen & W.H. Pulver	Maximum Number 25	\$125	GPs	Mai Pohlak (416) 979-4503/4
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Sports Dentistry		Oct. 18 1985	Lecture & Demonstration	Dr. Norman Levine	Open	\$125	GPs	Mai Pohlak (416) 979-4503/04

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Advanced Crown and Bridge		Oct. 18 & 19 1985	Participation	Mr. A. Zeoli	Limited to 6	\$175 (DDS) \$125 Technicians	GPs Lab. Technicians	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Orthodontics — Lingual Bonding	Orthodontics	Oct. 25, 26 27 1985	Lecture Participation	Dr. Rolf Maijer	Open Oct. 25 Limited to 30 Oct. 26, 27	\$275 (for Oct. 25) \$1500 (all 3 days)	GPs Specialists	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Fissure Sealants		Nov. 2 1985	Participation	Dr. H. Stein	Limited to 30	\$150 (for DDS) \$100 (Hygienists)	GPs Hygienists	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Photography I		Nov. 1 1985	Lecture Participation	Rita Bauer	Limited to 12	\$125 (for DDS) \$85 (Aux.)	GPs Spec. Assistants Hygienists Lab. Technicians	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Endodontics II Participation	Endodontics	Nov. 7th Nov. 14th 1985	Participation	Drs. B.H. Korzen & W.H. Pulver	Maximum of 15	\$300	GPs	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	C.P.R.		Nov. 13 to 15 1985	Lecture Participation	Dr. Earle Young	Maximum 8 DDS 8 Auxil.	\$200	GPs Specialists Assistants Hygienists	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Toronto, Ont. Faculty of Dentistry	Porcelain Jacket Crown		Nov. 15 & 16 1985	Participation	Mr. A. Zeoli	Maximum of 6	\$175 (for DDS) \$125 (for Lab Technicians)	GPs Lab. Technicians	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	King Edward Hotel & Faculty of Dentistry, Toronto, Ont.	Osseointegration in Clinical Dentistry		Nov. 18, 19, 20 1985	Lecture Demo. Participation	Dr. George Zarb	Maximum of 80	\$1500	Specialists	Mai Pohlak (416) 979-4503/04

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Faculty of Dentistry Toronto, Ont.	Oral Sedation		Nov. 22 1985	Lecture	Dr. R.S. Locke	Maximum of 25	\$125	GPs	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto Ont. M5G 1G6	Sheraton Centre Toronto, Ont.	Oral Surgery Conference		Dec. 7 1985	Lecture	Dr. Robert Marx University of Miami	Open	\$150	GPs Specialists	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Toronto 124 Edward Street, Toronto, Ont. M5G 1G6	Faculty of Dentistry Toronto, Ont.	Dental Ceramics Advanced Metal Ceramic Crowns		Dec. 13, 14 1985	Participation	Mr. A. Zeoli	Limited to 6	\$175 (for DDS) \$125 (for Lab Technicians)	GPs Lab. Technicians	Mai Pohlak (416) 979-4503/04
Faculty of Dentistry University of Western Ontario, London, Ontario N6A 5C1	London, Ont.	Occlusion I Fundamentals of Occlusion and Articulation	Occlusion	Oct. 24 to 26 1985	Lecture Participation	Dr. W.R. Teteruck	Limited to 16	Fee \$600 Instruments \$600	GPs Lab. Technicians	Mrs. M.J. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario, London, Ontario N6A 5C1	London, Ont.	Endo-Restorative Treatment of Mutilated Dentition	Operative Dentistry	Nov. 16 1985	Lecture	Dr. M. Suzuki	Limited to 35	\$155	GPs	Mrs. M.J. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario, London, Ontario N6A 5C1	London, Ont.	Direct Bonding Symposium	Prosthodontics	Nov. 8 & 9 1985	Lecture	Drs. R.E. Jordan & A.J. Gwinnett	Limited to 150	\$275	GPs	Mrs. M.J. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario, London, Ontario N6A 5C1	London, Ont.	Refresher Day in Pediatric Dentistry	Paedodontics	Nov. 30 1985	Lecture	Dr. G.Z. Wright	Limited to 30	\$150	GPs	Mrs. M.J. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario, London, Ontario N6A 5C1	London, Ont.	Crown & Bridge Back to Basics	Prosthodontics	Dec. 5 to 7 1985	Lecture Participation	Dr. D.R. Gratton	Limited to 10	\$525	GPs	Mrs. M.J. Firmston (519) 679-2550

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Winnipeg Dental Society 300-296 Kennedy Street, Winnipeg, Man. R3B 2M6	International Inn Winnipeg	Dental Office Emergencies		Oct. 7 1985	Lecture	Dr. B.K. Arora	Open	No Fee	GPs Auxiliaries	H. Ross McIntyre (204) 942-5211
Faculty of Dentistry University of Manitoba 780 Bannatyne Avenue, Winnipeg, Man. R3E 0W3	Westin Hotel Winnipeg	Current Concepts of Odontogenic Cysts—An Update. Desquamative Diseases of the Gingiva	Oral Pathology	Oct. 26 1985	Lecture	Dr. Charles E. Tomich	Open	\$75	GPs	Ms. Pat McCallum (204) 786-4323
Winnipeg Dental Society 300-296 Kennedy Street Winnipeg, Man. R3B 2M6	International Inn Winnipeg	Orthognathic Surgical Therapy		Nov. 18 1985	Lecture	Dr. Roger West (Seattle Washington)	Open	No Fee	GPs	H. Ross McIntyre (204) 942-5211
College of Dental Surgeons of Saskatchewan 109-514 23rd St. S. Saskatoon, Sask. S7K 0J8	Saskatoon, Sask.	Radiology and Oral Lesions	Oral Radiology	Oct. 19 1985	Lecture	Dr. Linda Lee & Dr. Michael Pharoah	Open	Tuition only \$40 Lab. \$25	GPs Auxiliaries Specialists	Dr. G.H. Peacock (306) 244-5072
College of Dental Surgeons of Saskatchewan 109-514 23rd St. S. Saskatoon, Sask. S7K 0J8	Regina, Sask.	Periodontics Update	Periodontics	Nov. 2 1985	Lecture	Saskatchewan Periodontal Group	Open	Tuition only \$40 Lab. \$25	GPs Auxiliaries Specialists	Dr. G.H. Peacock (306) 244-5072
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Oral Pathology		Sept. 7 1985	Lecture	Drs. H.M. Dick & W.T. McGaw	Open	Not Decided	GPs Auxiliaries Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	The Warm Gutta Percha Gun. . . Expanding Your Horizons in Endodontic Therapy	Endodontics	Sept. 14 1985	Lecture Demo. Participation	Drs. C. Hawrish & K. Zakariasen	Limited to 45	Not Decided	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Calgary Alta.	Changing Perspectives in Periodontics, Orthodontics TMJ Therapy and Prosthodontics	Oral Rehabilitation	Sept. 27 & 28 1985	Lecture Demo.	Dr. A. Frydman and Associates	Open	Not Decided	GPs Auxiliaries Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Dental Treatment for the Geriatric Patient	Dentistry for the Aged	Oct. 4 & 5 1985	Lecture	Drs. D. Skelton & J.M. Doherty (of Chicago)	Open	Not Decided	GPs Auxiliaries Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Calgary Alta.	The Warm Gutta Percha Gun . . . Expanding Your Horizons in Endodontic Therapy	Endodontics	Oct. 26 1985	Lecture Demo. Participation	Drs. C. Hawrish & K. Zakariasen	Limited to 45	Not Decided	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	The Pharmacist and his Role in Your Dental Practice	General Dentistry	Nov. 16 1985	Lecture	Dr. H. Dixon	Open	Not Decided	GPs Auxiliaries Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Space Management in Dental Practice	Orthodontics	Nov. 30 1985	Lecture Demo. Participation	Drs. K. Glover & W. Lobb	Limited to 40	Not Decided	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	The "Unrestorable Tooth. An Endodontic and Prosthodontic Approach to Treatment	Prosthodontics	Dec. 6 & 7 1985	Lecture Demo. Participation	Drs. K. Compton & K. Zakariasen	Limited to 45	Not Decided	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	?? Posterior Composites??	Dental Materials & Devices	Jan. 11 1986	Lecture Demo. Participation	Dr. S. Newman	Limited to 45	Not Decided	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Calgary Alta.	Resilient Denture Liners and Clinical Management of Prosthodontic Associated Pathology	Prosthodontics	Jan. 17 1986	Lecture	Dr. W. Harley	Open		GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Resilient Denture Liners and Clinical Management of Prosthodontic Associated Pathology	Prosthodontics	Jan. 18 1986	Lecture	Dr. W. Harley	Open		GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Clinical and Periodontal Surgery: Part I	Periodontics	Jan. 24 1986	Lecture Demo. Participation	Drs. P. Schuller & M. Eggert	Limited to 10		GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Dental Considerations in Medically- Compromised Patients	Oral Medicine/ Diagnosis	Jan. 25 1986	Lecture	Dr. J.M. Plecash	Open		GPs Auxiliaries Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Education Faculty of Dentistry University of Alberta 4046 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Clinical and Periodontal Surgery: Part II	Periodontics	Jan. 31 1986	Lecture Demo. Participation	Drs. P. Schuller & M. Eggert	Maximum of 10	Not Decided	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	Vancouver, B.C.	Esthetic Bonding A Participation Course — Doing is Knowing	Dental Materials and Devices	Sept. 14 1985	Lecture Participation	Dr. William A. Richter Coordinator with dental faculty members	Limited to 40	\$150	GPs	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	Vancouver, B.C.	Update on Scientific Basis & Practice of Caries Prevention	Preventive Dentistry	Sept. 21 1985	Lecture	Leon M. Silverstone DSc, PhD, Bch.	Open	\$95 (DDS) \$50 (Aux.)	Open	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	Vancouver, B.C.	What is the Latest in Filled Resins and Dentin Bonding?	Dental Materials and Devices	Sept. 28 1985	Lecture	Jack I. Nicholls PhD	Open	\$95 (DDS) \$65 (Tech) \$50 (Aux.)	GPs Specialists Technicians Auxiliaries	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	Four Seasons Hotel Vancouver, B.C.	Cash Management and Cash Flow Forecasting — Skills for the Active Dental Practice	Practice Management	Sept. 28 1985	Lecture Participation	Nick Adams-Aston B.Comm, MBA John Noonan	Limited to 30	\$140	GPs Specialists Office Managers	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Crowns & Bridges Theories and Practicalities	Prosthodontics	Oct. 5 1985	Lecture	Harry Gelfant DDS Dennis Nimchuk, DDS	Open	\$95 (DDS) \$50 (Aux.)	GPs Auxiliaries Specialists Others	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	An Update in Endodontics	Endodontics	Oct. 12 1985	Lecture	F. James Marshall, DMD, MS	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Ceramo-Metal Restoration for Esthetics and Function	Dental Materials and Devices	Oct. 19 1985	Lecture	Masahiro Kuwata	Open	\$95 (DDS) \$50 (Aux.) \$65 (Tech.)	GPs Specialists Auxiliaries Lab. Technicians	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Restoring the Partially Edentate Mouth	Prosthodontics	Oct. 20 1985	Lecture	Harold W. Preiskel, MDS, MSc, FDS	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Changing Concepts in Periodontics in the 80s	Periodontics	Nov. 2 1985	Lecture	John F. Prichard DDS	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	The Impacted Third Molar: Current Concepts	Oral and Maxillo-facial Surgery	Nov. 16 1985	Lecture	Burton H. Goldstein DMD, MS	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Current Orthodontic Dilemmas: Functional Appliances, Extractions, Facial Profile.	Orthodontics	Nov. 23 1985	Lecture	Dr. Ron Markey, DDS, MSD Coordinator	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Minor Tooth Movement to Facilitate Restorative Treatment	Orthodontics Periodontics	Nov. 30 1985	Lecture	Curtis Wade DDS	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627
Continuing Dental Education 105-2194 Health Sciences Mall University of British Columbia Vancouver, B.C. V6T 1W5	University of B.C. Vancouver	Oral Health Management: What to Do When Patients Don't!	Preventive Dentistry	Dec. 7 1985	Lecture	Tracy Getz MS Philip Weinstein MA, PhD	Open	\$95 (DDS) \$50 (Aux.)	GPs Specialists Auxiliaries	Dr. M.F. Williamson (604) 228-2627

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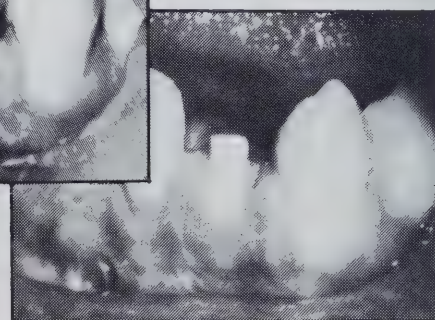
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¹ Meiers, J.C. and Schachtele, C.F., "The Effect of an Antibacterial Solution on the Microflora of Human Incipient Fissure Caries," *Journal of Dental Research*, January, 1984, Vol. 63, No. 1.

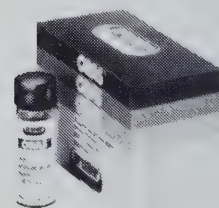


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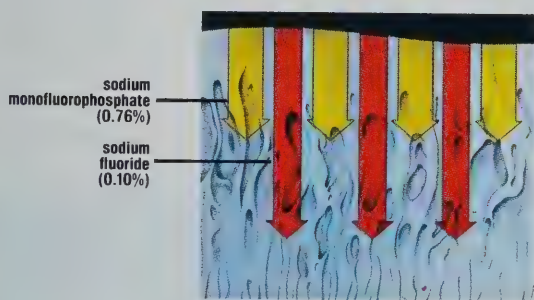
How Colgate's two fluoride formula achieves more complete remineralization resulting in nearly double the cavity protection of a single fluoride formula.*

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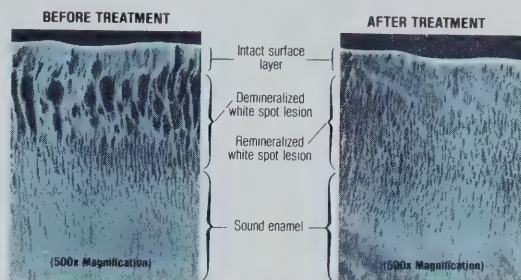
Why these two fluorides remineralize more completely.

It has been postulated that fluorides reach white spot lesions by penetrating enamel through the interprismatic spaces. Sodium monofluorophosphate, being a larger molecule, reacts with enamel primarily at the surface of a white spot lesion. Sodium fluoride, a smaller molecule, penetrates deeper into the lesion.



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*Sodium monofluorophosphate (0.76%)

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† Colgate Toothpaste contains sodium monofluorophosphate and sodium fluoride which are, in our opinion, effective decay preventive agents and are of significant value when used in a conscientiously applied program of oral hygiene and regular professional care.

PARTNERS IN PREVENTIVE DENTISTRY.

Letters

CORRECTION

In the July 1985 issue, in a response from the Editors to Dr. Charles Oler's letter, the company producing Crest toothpaste was incorrectly referred to as Colgate-Palmolive. Crest is made by Procter and Gamble. The Editors apologize for this error.

DIFFERING CONCLUSIONS

I enjoyed reading the article entitled, "A Summary of the Results of the National Preventive Dentistry Demonstration Program" in the June 1985 issue of the Journal. The authors are to be complimented for tackling this project.

While I realize that I am not aware of all the considerations made by the authors, I did come to some slightly different conclusions from reading the data supplied. These conclusions may be caused by different biases on their part or mine, of a philosophical nature.

The size of this study and the wide distribution of the written reports suggest further discussion is important. The following points are of interest to me.

The protection apparently afforded by fluoridation appears to be in the 30 percent range. While this is substantial, it is a long way from the 60 percent most often quoted. Even more interesting is that differences among the fluoridated communities appear to be greater than the differences between the averages of the fluoridated and non-fluoridated communities. The different base line levels and the absence of a nearby twin city, one fluoridated and one not, confuse the picture. Nevertheless, it appears that there are differences among both the fluori-

dated communities and non-fluoridated communities that are unexplained.

Quite a lot of mention of secular trend was made. Caries rates are falling in industrialized countries and rising in developing ones. My opinion on these trends is that the developing countries are adopting cariogenic diets, and professional dental services are lacking, while in the industrialized countries, children are improving their use of preventive oral skills and particularly, are using fluoridated dentifrices. Toothpaste technology may be much further advanced than public health dentists understand. The remineralizing effect of these dentifrices is underestimated in my view, and soon I expect, more effective remineralizing compounds will be available which will reduce caries rates even further.

I would agree that education alone does not improve dental health. Changing behavior to a preventive lifestyle does. Intervention by finding neglected children and being the influence that causes positive interception to happen, does also.

American public health dentists seem to worry about the difficulty encountered when groups of people do not immediately follow dental health recommendations. They call this non-compliance and the excuse is made that people are being asked to adopt middle class values which they can't or won't afford. The decision is made; let's do it for them. Nonsense. Dental health recommendations are fundamental to all classes in leading a healthy life. People who legitimately can't afford dental care for their children, deserve support from welfare agencies. The rest have to be sold on the benefits. That selling job is the core of dental public health activity. Selling may be a

lot harder than giving but giving is really a cop-out from not doing the job. Public health is part of the culture of a society. A change in cultural behavior, not education, should be the objective of dental health programs.

The main message that I get from reading this paper is the one I have always believed in. People who learn to keep their mouths clean, and who use the dental profession for regular preventive maintenance, will end up the healthiest.

A.S. Gray, DDS, FRCD(C)
Director
Dental Health Services
Province of British Columbia

DEPRESSED AND ELATED

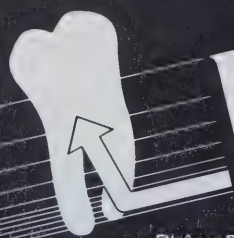
After 33 years in practice, I felt both depressed and elated after having read "Functional Scheduling" by Dr. William F. Shaw in the May issue of the Journal.

The depression overcame me when I realized that my solo practice, with my Girl Friday, did not have "Prime" nor "Hygiene" nor "Offset" chairs. I also realized that my appointment book was not up to par and needed radical surgery. My misfortune was showing the article to my receptionist, who also serves as my "offset" dental assistant, "prime" chair assistant, and bookkeeper, who immediately wanted a 300% increase in salary.

I am elated because my humble office is friendly and stress-free. I wish Dr. Shaw many, many years of rewarding and satisfying practice.

M. Gordon, DDS
Vancouver, B.C.

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One copy of the above articles is available at no charge from the Library to all CDA members. Non-members will be charged \$5.00. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5.00 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

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TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

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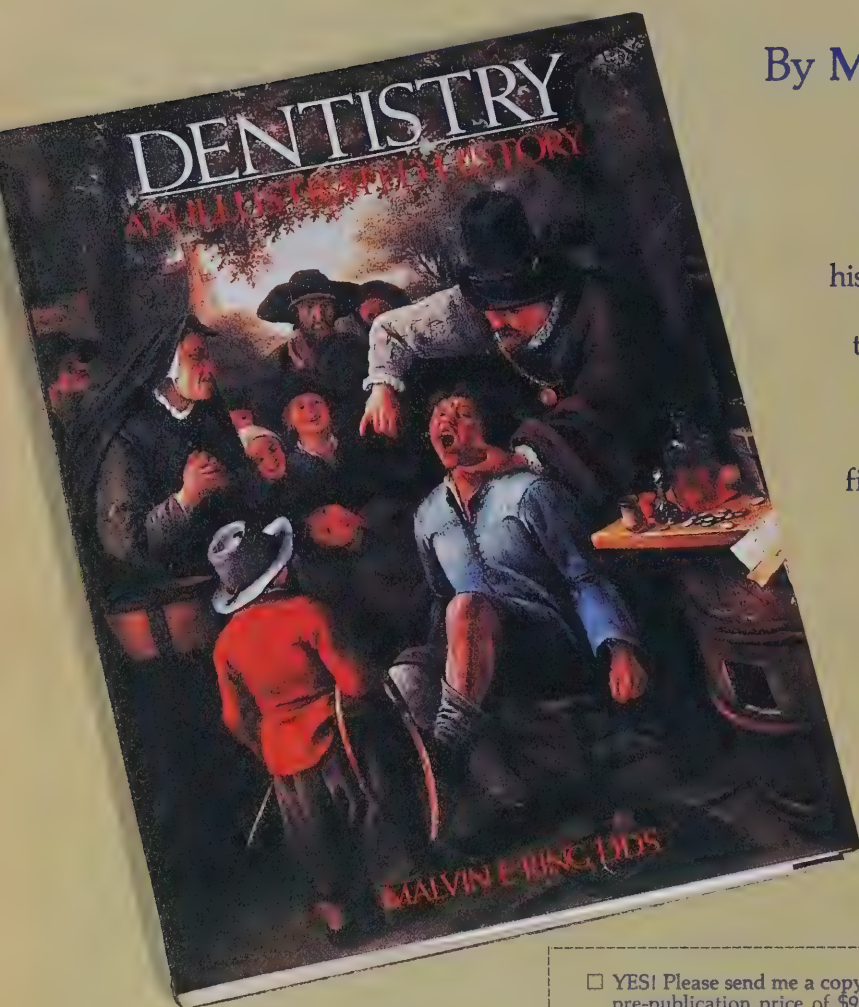
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MANUEL D'ORTHOPÉDIE DENTO-FACIALE

Francis Bassigny

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Lorsque le lecteur lit l'avant-propos de ce volume, il découvre que l'intention première de l'auteur est de voir cet ouvrage "couvrir l'enseignement de l'O.D.F." chez les étudiants du deuxième cycle. Ce livre s'adresse également aux généralistes et aux spécialistes.

La deuxième démarche du lecteur est d'éplucher le plan décrit dans la table des matières. Ce plan est assez détaillé et nous promet une élaboration poussée des différents sujets qui couvrent l'orthodontie moderne.

La lecture, chapitre par chapitre, de ce volume s'avère, à mon sens, très décevante car les belles promesses de la table des matières ne sont pas tenues. Tous les points sont traités mais ce, malheureusement, d'une manière trop succincte. Il s'agit plus d'une énumération assez détaillée des différents sujets que d'une discussion complète de ceux-ci. Je trouve qu'il serait difficile, pour un étudiant de deuxième cycle, de se référer à cet ouvrage et de comprendre bien des situations qui se présentent en pratique.

Les notions de base sont assez bien révisées, même si relativement peu élaborées. L'établissement et l'interprétation du dossier orthodontique sont assez bien traités, mais, là encore, l'auteur nous laisse sur notre faim car il ne présente que quelques méthodes qui peuvent être discutables et dont les avantages et désavantages devraient être décrits plus en détail et comparés à ceux d'autres techniques.

Les anomalies orthodontiques et leurs traitements: les anomalies sont assez bien décrites. Cependant, il y aurait des nuances à apporter et j'aimerais voir des affirmations un peu moins catégoriques dans certains cas. Le traitement de ces anomalies est basé sur deux méthodes qui ont leurs avantages et leurs inconvénients. Pour un étudiant de

deuxième cycle, on souhaiterait voir plus de techniques discutées en détail.

Les discussions sur la biomécanique sont nettement trop courtes et incomplètes. Certaines discussions et figures sont trop compliquées et rendent le sujet difficile à comprendre pour un non initié.

On aimerait voir à la fin de chaque chapitre une liste bibliographique complète afin de pouvoir se référer aux ouvrages (livres ou journaux) originaux. Ce point est indispensable pour un étudiant de deuxième cycle qui doit se former un esprit critique et qui doit comparer les idées des différents auteurs. Seule une bibliographie sommaire se retrouve à la fin du volume.

En conclusion, je ne recommanderais pas ce livre de référence à des étudiants de deuxième cycle même s'il peut être d'un certain secours dans la révision de certains sujets lors de la préparation d'un examen. Je vois ce livre comme un résumé assez détaillé de certains sujets couverts par l'orthodontie actuelle.

*This book was reviewed by
Dr Claude Remise
Outremont, P.Q.*

CHARLES EDWIN BENTLEY — A MODEL FOR ALL TIMES

Clifton O. Dummett and
Lois Doyle Dummett

*North Central Publishing Company.
St. Paul*

Charles Edwin Bentley was a dentist and a Negro. He graduated from the Chicago College of Dental Surgery in 1887. In spite of the strong racial prejudices of the time he became, because he was a keen student and a cultured man, a leader in the dental profession of the time.

He was closely associated with such great pioneers of the dental profession as G.V. Black, "the father of Dentistry", C.N. Johnson, Edmund Noyes and Truman W. Brophy in the progress of the dental profession. Throughout the book there are references to Bentley's opinion that dentistry should be based on a broad education in the

sciences, medicine and research, and not on technical proficiency alone. He is credited, on the jacket of the book, with being "The Father of the Oral Hygiene Movement in the United States".

This story will be thrilling to all dentists because it describes so much of the developments on which our present concepts and practices are based.

The authors are Clifton O. Dummett, Professor of Dentistry, University of Southern California and President of the American Academy of the History of Dentistry and Lois Doyle Dummett, B.A., a journalist.

The references are listed as "Selected Informational Sources" and there are 188 of these — a very rich source for a dentist who is interested in the history of his profession.

*Reviewed by
Dr Charles H.M. Williams
a retired periodontist
from Mississauga, Ont.*

PRINCIPLES OF ORAL SURGERY

J.R. Moore and G.V. Gillbe

*Manchester University Press
Manchester, England
\$12.50 soft cover
254 pages*

"PRINCIPLES OF ORAL SURGERY." This soft cover book of 254 pages is intended for undergraduate dental students, dental interns, and recent graduates. It deals with principles rather than details and fulfills this function well.

Professor Moore and G.V. Gillbe from the University of Manchester present a very clear review of oral surgery as practised in the United Kingdom. Each chapter is followed by a bibliography for further reading. Unfortunately most of these references are published in the United Kingdom and may not be readily available in Canada.

The conceptual advances in certain areas of oral surgery eg. Orthognathic Surgery and Salivary Gland Investigation require further development to provide a broader introduction for undergraduates.

The chapter dealing with the Temporomandibular Joint offers an excellent reference guide, whereas the subject of infections and antibiotics leaves much to be desired for training of the dental student in North America. The duration of antibiotic treatment and dosages indicated differ from those principles adhered to by most dental facilities in North America.

The chapters on the removal of erupted and unerupted teeth offer an excellent introduction to the student as well as an excellent review to the practising dentist. The illustrations are well done and fulfill their function with the accompanying dialogue.

In summary, oral surgery is reviewed in a concise, clean manner. This book should not replace the standard texts subscribed for the curriculum in most North America dental schools but should serve as an introductory text for students and a review of principles by the practising dentist.

*This book was reviewed by
Paul Chapnick DDS
an oral surgeon in Toronto*

ATLAS OF RADIOGRAPHS OF EARLY MAN

M.F. Skinner and
G.H. Sperber

This text is a catalogue of specimens amalgamating collections from the theses of both authors. The stated purposes of the text are: first, to provide "new data on evolutionary changes in hominid dental maturation, root morphology and internal features of the teeth"; and secondly, to make this material accessible to their colleagues as an "otherwise unavailable source of raw data".

Radiographs and the occasional photographs of the specimens are presented

according to their geographic origin and not by their taxon. The reproductions are accompanied by a short synopsis which includes: the site of the specimen, specimen identification, the provenance (geographical, archaeological and chronological context of the specimen), a short description, dental age, additional comments, the radiographic views included, and the present location of the specimen.

The introduction provides useful information which details the method of data accumulation and interpretation. However, the table of contents merely lists geographic regions. Individual specimens are listed in the index solely by their corresponding figure number. Knowledge of the specimen number and location are required before this index becomes functional.

The choice of text format displays much wasted space. Some of the radiographs are needlessly magnified to occupy half a page. Occasionally half of a page remains completely blank. Considering the substantial cost of the text, such poor allocation of material appears to be unjustified.

Many of the reproduced radiographs are good in quality. However a number of radiographs are so poorly reproduced that they contribute little information. Some radiographs are the result of poor technique presenting distorted images resulting from bending of the films. Occasionally only photographs of the gross specimen are presented bereft of accompanying radiographs.

The majority of film interpretations appear accurate. However, poor reproductions of some of the radiographs occasionally make it impossible to visualize the points of interest emphasized by the authors.

Some of the authors' conclusions are unsubstantiated. For instance, prolonged weaning is suggested as the etiology of tooth defects yet no appropriate references

are cited. Another observation notes "an unusual double root canal in the mesial root of 46" (MLD 28 pg. 33) yet this falls within the range of normal anatomy. Second bicuspid were concluded to be congenitally missing at an early developmental age (pg. 195 & 245). Yet the usual appearance of the second bicuspid may be tardy even though the first bicuspid is partially formed (Worth).

Many of the radiographic films demonstrate nothing of interest apart from normal anatomy. If there are significant features of the osseous or dental structures, reflecting evolutionary changes, the authors do not mention them. The text simply collates the raw data from two PhD theses and does not represent a comprehensive collection of all available specimens.

The value of this work would have been increased substantially if the authors had analysed the radiographs in more detail then accumulated this data in an organized fashion and come to some conclusion as to the significance of their observations.

This book will be of interest to a very specialized group of readers. Unfortunately it will not hold interest for the general anthropological or dental audience. The authors do however provide access to information not otherwise available, but this data is severely limited by the quality of the reproductions.

*This book was reviewed by
M.J. Pharoah, DDS, BSc
Toronto
and J.C. Kolar, BA, MA, PhD,
assistant professor,
Dept. of Anthropology,
University of Toronto.*

Reference

H.M. Worth, Principles and Practice of Oral Radiologic Interpretation, Year Book Medical Publishers, 1963.

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GREY CUP CHAMPIONS BLUE BOMBERS' DENTIST-PRESIDENT ENJOYS 'COMMUNITY INVOLVEMENT'

Clarence Metcalfe, BJ

At the age of 39, Dr. J.S. (Jan) Brown's most cherished boyhood dreams have come true.

His early interest in dentistry and in becoming "intimately involved with a professional sports championship team" were instilled in him by the Winnipeg dentist's late father, Dr. J. Fred Brown, a 1930 graduate of the University of Toronto's School of Dentistry.

Dr. Brown is now a partner in a successful Winnipeg group dental practice, and the icing on his other cake was applied last November, when, as President of the Winnipeg Blue Bomber Football Club, his team returned the Grey Cup to that city.

Although the win brought great personal satisfaction to him, Dr. Brown ensures that his involvement, which he terms "my major volunteer commitment" to the community, creates a minimum of disruption in his professional and family life. He holds the position only because of the support and understanding of his family, his partners, staff and patients.

He pointed out to the Journal that many dentists in Canada give hours of their time to volunteer organizations or to their provincial or national associations. Because the Winnipeg Football Club is a community owned and operated organization, it involves the time and dedication of a large group of volunteers.

The club has a board of directors com-

prised of 75 Manitoba citizens who establish the club's policy. An executive committee of nine board members is elected annually. The executive committee is more intimately involved with the day-to-day business. This committee is responsible for the hiring of the general manager. The general manager is in charge of all operations. He and the president meet or talk on a daily basis about all aspects of the operation. The president serves as a sounding board and advisor to the general manager in this relationship.

One of the president's most important responsibilities is to monitor the financial progress of the club. He also oversees the activities of the board of directors in their duties, which include: public relations within the community, fund raising, and committee work.

Also CFL Governor

By virtue of his office, the president also sits as the representative of his club on the Canadian Football League's Board of Governors. This Board is the CFL's policy making body and works with the Commissioner and the Management Council in operating the CFL.

Dr. Brown observes that the wise president "will surround himself with extremely competent people on his executive committee and will leave the operation of the football club in the capable hands of the general

manager." He says "if I have been successful, it is due to the fact that I have followed this ideology."

Has served profession

Although Dr. Brown suggests that other dentists have chosen to give much of their time and effort to serving their professional organizations, he has paid his personal dues.

A graduate of the University of Manitoba School of Dentistry in 1969, Dr. Brown has been a member of the Manitoba Dental Association's dental auxiliaries committee and of the Canadian Dental Association's Health Care Council. From 1978 through 1985, he served on the executive of the Winnipeg Dental Society and was President of that Society in 1983-84.

He has been in general practice for the past 16 years at the Assiniboine Dental Group in Winnipeg. In the mid 1970s, he was a part time instructor at the University of Manitoba's Faculty of Dentistry.

Many professionals involved

Dr. Brown notes that the involvement of the professional man on a volunteer basis in the Canadian Football League is "quite common." The current presidents of the Edmonton Football Club (an MD) and the Calgary Stampeders (lawyer), are both self-employed professionals as are the past-presidents of Saskatchewan Roughriders



Winnipeg Blue Bombers' coach, Cal Murphy, left, and Dr. Jan Brown, savor their victory in the Western Division Final victory over the B.C. Lions at a team reception in Winnipeg.

and the Calgary Stampeders (both lawyers). He said that economically, it is definitely not advantageous because it is necessary to spend so much time out of the office ("20 extra days in 1984").

Although it provided great satisfaction to achieve two major objectives of the executive committee in 1984, gaining more fan and financial support and winning the Grey Cup, another factor was even more rewarding.

Dr. Brown said he had worked with four Blue Bomber presidents in his nine years as an executive committee member, and, "having the ability to continue their tradition of contributing to our community is important to me. I happen to hold the position of President during a term where the direction of both our Club and the CFL is changing. Ideas which have been discussed and planned for years by various administrations, are now beginning to take shape. At both the Club and League level, marketing and public relations endeavors, leading to the Club and League improving their images in Manitoba and Canada respectively, have been developed, and the results are becoming obvious. The turn-about in

attitude in our community toward the Bombers in the last few years, has been very gratifying. Today, the Winnipeg Football Club has re-established itself as the major sports enterprise in Manitoba and the pride in its 55-year history has returned. Simultaneously, the CFL is beginning to take its first steps to re-establishing its position in Canada, which it enjoyed throughout its heritage.

A very young fan

"I first attended a Bomber game as a lad of five, sitting on my father's knee at the Osborne Stadium, the predecessor to our present stadium," Dr. Brown told the Journal. "I have attended faithfully since then. My father passed away suddenly when I was nine. Among the many attitudes I inherited from him was a love of sports, football in particular, and a subconscious determination to continue in his footsteps in dentistry."

He said it became clear to him at an early age that "I did not have the ability to play professional sports." The next best thing, he believed, was to "be intimately involved with a professional sports championship team."

Asked to join board

The deep interest of the teenager and later, the young dentist, was noticed by members of the existing Board of Directors, one of whom was Dr. Neville Winograd (Bombers President, 1964-65), a dental colleague in Winnipeg. In 1974 he was asked to join the Board of Directors.

When asked by this Journal if his activity with the football club was a good way to alleviate the stresses of dentistry, Dr. Brown said "there is stress related to the presidency as well. The enjoyment of the activity can offset this, however, and the diverse involvements create new and interesting challenges. To be involved, one must sincerely have an interest in, and a love of the game of football. In my opinion, there are, however, better ways to combat the effects of stress."

Dr. Brown and his wife Sigrid have two boys, Scott, 12, Craig, 8 and a daughter, Brionie, who is 9.

They are very active in music, swimming, hockey and ringette.

He says his boys are not involved in organized football, for two reasons: "potential conflict with hockey (their first love), and my personal belief that involvement in organized football should be related to physical maturity of the youth, to prevent damage to skeletal development." However, he adds, "all my children are avid football fans. My personal involvements beyond dentistry and football administration, are youth sports and golf."



Victory is sweet! After a long drought, the Grey Cup was returned to Winnipeg in November, 1984. It was a moment to rejoice, for Dr. Jan Murphy, President of the Winnipeg Football Club, centre, (behind the Grey Cup) surrounded by his equally pleased Executive Committee members.

Specialty Features

PAINLESS PARKER THE FINAL CHAPTER

Peter M. Pronych, BA, DDS, Cert. Paedo, MS
first North American Journal/Magazine rights only



In Parts I (JCDA 51:72-74, 1985) and II (JCDA 51:289, 290, 1985) memorable moments in the colourful dental career of Painless Parker were highlighted. These events took place on the East Coast at the turn of this century. In this, the last part, Painless Parker's dental adventures began all over again on the West Coast and continued until 1952.

Part II ended as Parker experienced burn-out and he and his family left New York for Europe

Edgar Parker toured Europe extensively with his family during 1904 and the follow-

ing year. Recuperation from exhaustion (as a result of his hectic life style in New York) and typhoid fever, was slow. Both had exacted their toll.

When Parker returned to New York, he attempted to resume dental practice. However, he no longer had the drive nor the interest. Eventually, he made the difficult decision to sell his dental clinics in New York to the dentists who worked in them.

In 1907, at age 35, Edgar Randolph "Painless" Parker retired from dentistry. New York held many memories for him and he was unhappy there. Edgar and his family returned to the West Coast where he and his

wife had previously lived before going to New York. He settled down in retirement on an estate in the midst of an orange grove very near Los Angeles.

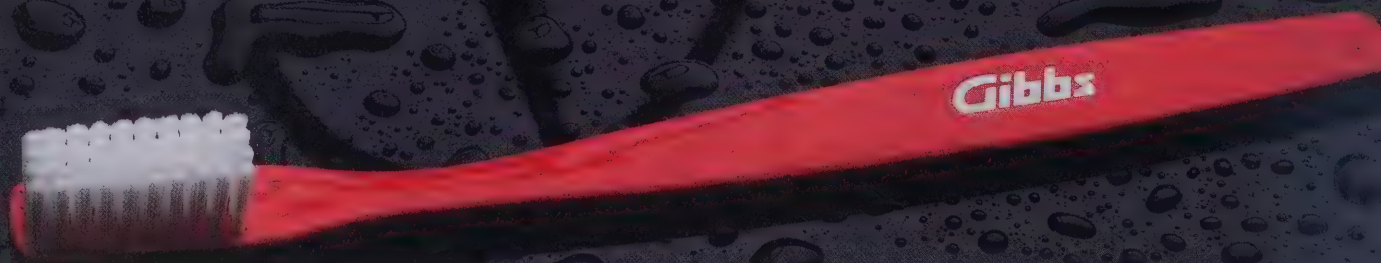
Perhaps it may have been the climate, the change of environment, the way of life in California, or a combination of all three, that were responsible for the eventual renewal and restoration of Edgar's previous zest and enthusiasm. Soon he garnered enough courage to rent a small office in Los Angeles and again began to practice dentistry on a small scale.

The possibility of using the vacant lot across from his office was just too tempting for Edgar and one day he finally gave in to his inward longing for showmanship. He hired an orchestra, held an outdoor concert, and between numbers preached to the crowds about the virtues of dental care and urged them to go to his office.

Before Edgar realized it, history was repeating itself — this time on the West Coast. He relied heavily on the previous experience he had acquired under the tutelage of his old friend, Bill Beebe. He hired tight-rope walkers, trapeze artists, and human "flies" to stage performances to advertise his presence. He even went so far as to engage blimps to tow banners overhead proclaiming his name, and he blatantly advertised in the local newspapers.

It wasn't unexpected that many people, enticed by this type of showmanship, came to his office. He had to expand his facilities and hire more staff. Soon he had to open other dental parlors in Los Angeles to cope with the large demand for dental treatment.

Painless Parker had difficulty hiring qualified dentists, as most shied away from that particular high-public-profile style. Many dentists who applied at his clinics were confirmed alcoholics. Edgar devised a rehabili-



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tation program for those. The program also involved their families and assured the families' financial security until the individuals were able to work productively again.

The razzmatazz returns

One evening Painless Parker noticed with interest an item in the newspaper describing a small circus stranded on the outskirts of Los Angeles. Next day, partly out of curiosity and partly out of his sentiment for a circus, he went to see it. By evening he had purchased the entire circus, complete with big top, band, clowns, acrobats and animals in gilded wagons.

Painless Parker proclaimed himself ringmaster, attired himself in a gaudy green satin suit and pink top hat and took to the road with his circus. He incorporated his dentistry performances into part of the circus show. From above, Beebe must have smiled approvingly! The Parker circus staged performances in towns up and down the coast of California. In areas where there was particular interest and support for his type of dentistry, he would open a dental parlor.

The circus routine was similar in all towns. When the circus reached a town, it would set up and stage a parade down mainstreet in the morning. Painless Parker would lead the parade atop an elephant. He would offer

free passes for the afternoon performance to those who agreed to have teeth extracted as part of his dentistry show under the Big Top. Eleven offices were eventually opened in centres in California through this method. The constant strain of performances tired Edgar. He eventually sold the successful circus and returned to practice dentistry in his dental parlors.

About the time World War I was beginning, Painless Parker relocated his headquarters from Los Angeles to San Francisco. He bought a 300 acre ranch in the Santa Clara Valley and began concentrating his efforts on expanding his offices out of California. Eventually he expanded to twenty-seven offices scattered in California, Washington, Idaho, Utah, Nevada, Oregon and British Columbia. He even journeyed east to try to re-establish offices in New York and the New England States. However, he was unsuccessful, as state laws had been enacted which prevented dentists such as him from using display advertising, chain dental parlors and public exhibition. These laws effectively restricted his activities and he was forced to return back west.

California enacted a statute in 1918 which compelled dentists to practice under their legal names. Edgar pre-empted the consequences of the law, which would have removed the use of his trademark "Pain-

less". He had his name legally changed from Edgar Randolph Parker to Painless Parker.

Licence revoked

In 1929, Painless Parker's licence to practice dentistry was revoked. It came about as a result of pressure from those within dentistry who maintained that dentistry should be a dignified and discreet profession. They also contended that the public should be protected from opportunists, such as Painless Parker, who were merely using the profession as a mantle to further their own selfish means.

This was a harsh edict for Painless Parker who, in his defence, claimed that his motives and actions were honorable. He protested that everything he did was directed toward improving the dental health of the common people through public awareness and accessibility to Dentistry. This legal action further alienated him from his colleagues and heightened his long-standing bitter dislike for organized dentistry.

No longer permitted to practice dentistry, Painless Parker concentrated all his efforts on the management and operation of his dental clinics. Others hired by him pursued the clinical aspects of dentistry in his offices. He further refined his life-long guiding principles of "organize, systematize, capitalize

and advertize" in the management of his dental clinics and was able to cut expenses and make them more efficient and productive.

In a story related by one whose dentist-friend worked in the Vancouver "Painless Parker" clinic, the assessment of the clinic was most positive. The clinic, which was situated in a poor section of downtown Vancouver, was efficiently operated. The senior dentist, who ran the day-to-day activities, allowed the junior dentists to concentrate on areas of dental treatment which interested them. The clinic was stark, austere and basic in its fittings. It had an entrance situated on the street and an exit in the alley.

A novel concept in this clinic, common to all Painless Parker clinics, was the overhead money bucket system. Through a series of ropes, pulleys and wires, the bucket holding the appropriate amount of money for the service, would pass from the operator to the business office (a form of cash and carry). Apparently this transaction had to be completed before any service could be rendered. At completion of treatment the patient was escorted out the back door. Almost every form of dentistry was performed by dentists in this clinic. The senior dentist would also supervise the quality of dental treatment rendered by his dentists.

Painless Parker's wife died in 1945 when

he was 73 years old. He was very lonely and had little to do. He sold his ranch and moved to an apartment in his San Francisco headquarters building. Some of his friends felt that he had been wronged by having his licence revoked. They began active lobbying on his behalf and his dental licence was eventually reinstated. Painless Parker's outlook brightened somewhat as he resumed the practice of dentistry, concentrating mainly in the area of exodontia.

After his wife's death, he began to travel frequently to New Brunswick to revisit places which he frequented in his youth, and to see the few surviving boyhood friends. His mental capacity was keen, his blue eyes still had their sparkle, however, his Vanddyke had turned white. He looked like a distant relative of the fried chicken empire magnate.

In November 1952, at age 80, Painless Parker died. With that passing, the era of the most incredible and astounding style of dentistry in history came to an end.

Much controversy still surrounds Painless Parker, his life and style of dentistry. On March 1, 1979, during the San Francisco Mock Court Hearings to right ancient wrongs, it was declared that Dr. Parker had been wronged way back in 1929, when his dentist's licence was revoked because of his outrageous advertising.

Lived before his time

Painless Parker has been credited with pioneering many dental practice concepts such as group dentistry, franchised dental offices, multiple-chair practice modes, background music in dental offices and setting the stage for the present trend of shopping centre/store front dental centres. Even more important, however, was the fact that through his efforts, dentistry was taken out of the confines of the dental parlors and brought into more public awareness.

As so often is the case, time treats its characters on the stage of life more kindly after their deaths. So it is with Painless Parker. It may well be that Painless Parker was actually many years before his time in history.

Dr. Prorych is Associate Professor and Head, Division of Paedodontics, Faculty of Dentistry, Dalhousie University, Halifax, Nova Scotia. B3H 3J5

The author acknowledges the review of and suggestions to the drafts by Dr. Patrick Blahut, Mrs. Joyce Barkhouse and Mr. Harry Stephen. Further, the author acknowledges the assistance of articles about Painless Parker written by Mr. Ian Sclanders, Mr. Stuart Trueman and Mr. Alan Hynd, in the preparation of these articles.

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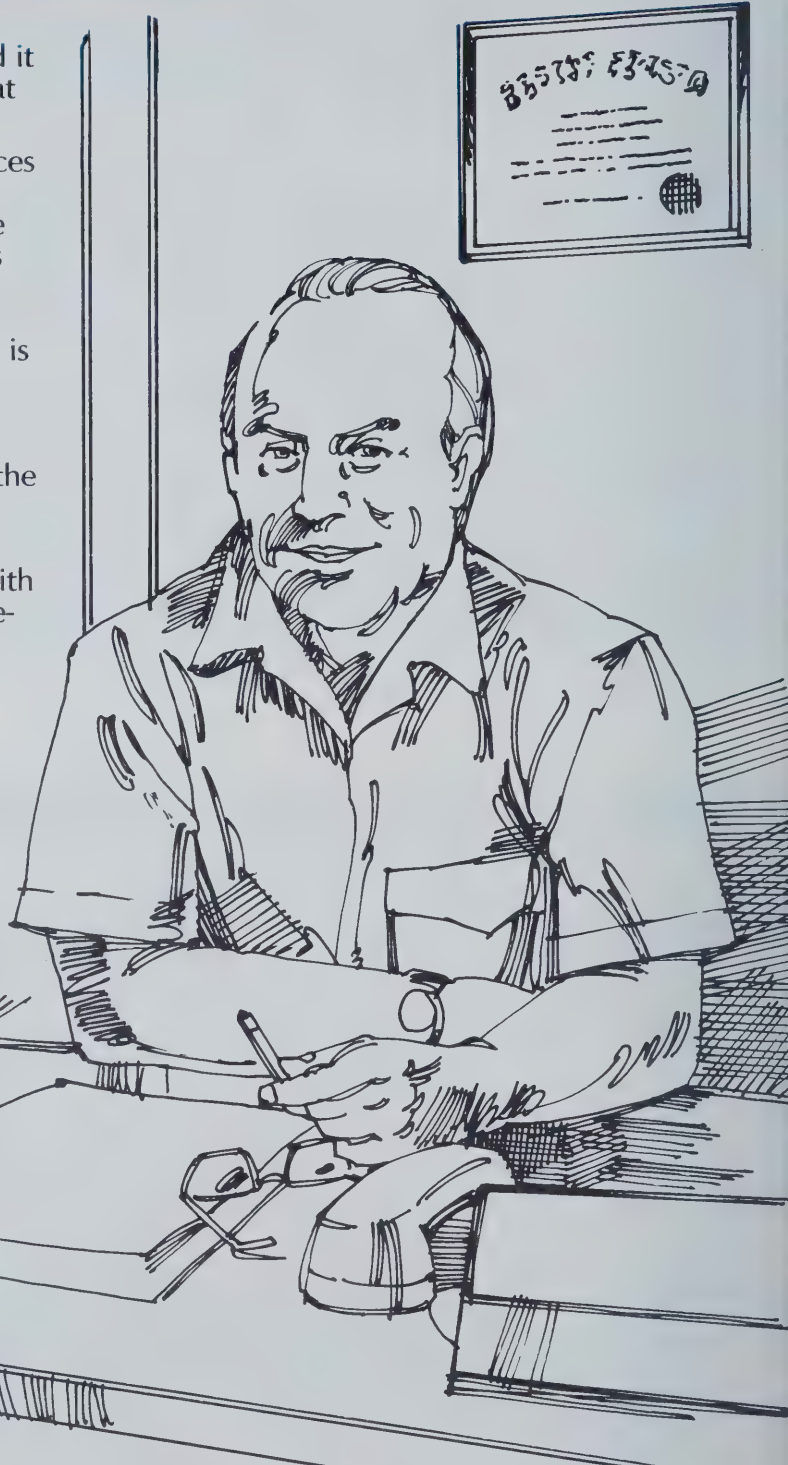
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BACCALAUREATE DENTAL HYGIENE EDUCATION IN CANADA

Barbara A. Zier, Dip. in DHyg., BEd, MEd.
University of Alberta
Edmonton, Alberta

ABSTRACT

The basic professional entry level of education for dental hygienists is a diploma or certificate. However as dental hygienists seek alternate employment opportunities and as dental hygiene emerges as a developing profession, recommendations for post-diploma education leading to baccalaureate degrees in dental hygiene are being made. The Faculty of Dentistry, University of Toronto, has offered a Bachelor of Science in Dentistry (Dental Hygiene) since 1976/77. A survey funded by the National Health Research and Development Program and conducted by the University of Manitoba, lends support for the need for a baccalaureate dental hygiene educational program in Western Canada. This paper discusses the rationale for baccalaureate dental hygiene education and describes the University of Alberta's proposed dental hygiene baccalaureate program.

INTRODUCTION

In Canada, the basic professional entry level of education for dental hygienists is a diploma or certificate. More recently, however, recommendations for post-diploma education leading to a baccalaureate (bachelor's) degree in dental hygiene have



been made.¹ This paper will explore the rationale for baccalaureate level education for dental hygienists, and describe existing Canadian dental hygiene baccalaureate educational programs, including the University of Alberta's response to Western Canada market demands for dental hygiene graduates with baccalaureate qualifications.

In the context of this paper, and consistent with definitions of baccalaureate dental

hygiene education appearing in the literature^{2,3}, baccalaureate dental hygiene education is defined as dental hygiene education offered as upper division or senior level courses whether post-diploma or distributed through a four year program of studies. Baccalaureate dental hygiene education is not dental hygiene augmented by a bachelor's degree in another field nor is it optional course work culminating in a bachelor's degree while the dental hygiene content and depth remain the same. Baccalaureate dental hygiene education includes offering of senior courses in the theory and practice of dental hygiene or dental hygiene related content.

RATIONALE

Some might question why dental hygienists would require or would want to pursue baccalaureate education. After all, the private dental office continues to be the dominant employment setting for the dental hygienist and diploma level education provides the preparation needed for the traditional private practice role. However, many dental hygienists envision assuming alternate employment roles and concomitantly there is need for dental hygienists with advanced education who are able to function beyond the scope of the traditional dental hygiene role and in a variety of professional environments (educational

institutions, hospitals, public health programs, group private practice, facilities for 'special needs' patients, professional associations, government agencies).

Baccalaureate dental hygiene education is one mechanism by which dental hygienists can be provided with the education necessary to pursue a variety of career options. Baccalaureate dental hygiene education can facilitate a more direct route for obtaining a bachelor's degree than taking a related degree (ie. Bachelor of Education, Bachelor of Science), a degree which may not necessarily be as applicable to the Dental Hygienist's career goals and which normally requires more time to complete than a baccalaureate dental hygiene degree. Baccalaureate dental hygiene education will also provide the basis for graduate programs in dental hygiene.

Rigolizzo and Forrest⁴ list the following functions in the form of a program philosophy for dental hygiene baccalaureate education:

"1) to provide a foundation for a highly educated and clinically skilled dental hygienist; 2) to prepare the dental hygienist for responsibilities in various career roles beyond traditional clinical dental hygiene practice; 3) to offer the dental hygienist the opportunity for upward mobility within the profession; 4) to broaden the experiences of the dental hygienist by interacting with various health professionals; 5) to prepare dental hygienists who are capable of doing research to contribute to the development of a specific core of knowledge for dental hygiene; 6) to develop an environment conducive to full and open inquiry into all facets of health, disease and education; 7) to prepare students to assume positions of additional responsibility and leadership in one or more of the following areas: dental hygiene education, management, public health, hospital dentistry and research; 8) to provide an environment conducive to developing decision-making skills and the pursuit of lifelong learning; and 9) to provide the academic foundation for graduate education."

B.Sc.D. (DENTAL HYGIENE)

There is one post-diploma baccalaureate education program in Canada: the Bachelor of Science in Dentistry (Dental Hygiene) offered at the Faculty of Dentistry, University of Toronto. The Program was started in 1976/77 and the first two students graduated in 1978.

"The course of study is two (2) full academic years, and may not be taken on a part-time basis. . . . The core curriculum provides dentally oriented courses in biological and clinical sciences, administration and education. The selective part of the program

*allows the student to gain additional strength in one or two of these areas. In addition an area of individual interest is chosen for independent study and becomes the theme of a major essay in the second year."*⁵

There have been twenty-four (24) graduates since the program's inception. The graduates have assumed exciting and varied positions; "the majority becoming involved in teaching and furthering their own education in Masters and Doctoral programs."⁶

WESTERN CANADA

The National Health Research and Development Program, Health and Welfare Canada, provided funding for the University of Manitoba School of Dental Hygiene to conduct a manpower survey which would assess the demand for dental hygiene degree graduates and determine the skills which potential employers expect graduates to possess.⁷ Institutions, organizations and government departments which currently employ dental hygienists in Western Canada were surveyed. The results of the survey lend support for the need for a baccalaureate dental hygiene educational program in Western Canada.

Some of the findings were reported as follows: One hundred eighty-three (183) full-time dental hygiene positions exist in education, public health, institutional and other similar employment settings (Manitoba — 7, Saskatchewan — 17, Alberta — 112, British Columbia — 44, Northwestern Ontario — 3). Baccalaureate degrees are required or highly desired for fifty-seven (57) of the 183 positions (Manitoba — 6, Saskatchewan — 11, Alberta — 27, British Columbia — 10, Northwestern Ontario — 3). If baccalaureate dental hygienists were more readily available, most employers would require degrees for full and part-time university and community college teaching positions, public health consultant and public health supervisory positions. Eighty-seven per cent (87%) of survey respondents believed that a baccalaureate program should have curriculum content from four areas: administration/management, clinical, education, and research.

The Division of Dental Hygiene, University of Alberta, has been cognizant of the need to implement a baccalaureate dental hygiene educational program and of the need to increase the numbers of dental hygienists with degrees in Western Canada. The results of the University of Manitoba survey reported above and growing support from the Alberta Dental Hygienists' Association, the Alberta Dental Association, Alberta Social Services and Community Health, the University at large and the

Faculty of Dentistry, have provided impetus for a proposed baccalaureate dental hygiene program at the University of Alberta. The baccalaureate degree program is designed to provide a small number of diploma level dental hygienists access to further education in public health (administration/management), education, clinical practice and research. The program of studies will include a core of humanities and social science electives, opportunities to gain increased depth in the basic and dental sciences and additional competencies in dental hygiene knowledge and skills. Program planning is being done to provide flexibility of program design consistent with the background, interests, personal and professional goals of each student. Recognizing that the majority of students enrolled in the program will be leaving salaried employment positions, consideration has also been directed to utilization of innovative course delivery strategies which may be able to shorten the period of full-time study i.e. transferability of approved electives taken as part-time students at the University of Alberta or other institutions, spring and summer session courses, and computer assisted instruction.

The Faculty is committed to the premise that regardless of career goals, the graduate should possess good clinical skills as well as a strong theoretical background and for this reason, a clinical component will be included in the program of studies. Opportunities for practical application of theoretical background will be provided by practicum experiences in a variety of settings such as public health practice, clinical dental hygiene teaching, hospital clinics, and dental office management.

CONCLUSION

Dental Hygiene has been described as a developing profession.^{8,9} Baccalaureate dental hygiene education, in addition to providing opportunities for alternate employment and upward career mobility for dental hygienists, may be the key avenue to attainment of full professionalism. The baccalaureate educational program has the potential to provide an environment that stimulates intellectual and scholarly achievement. Graduates can acquire knowledge and skills beyond that which is expected at the diploma level; the baccalaureate dental hygiene graduate can possess enhanced administrative, organizational, research, decision-making, evaluation and leadership skills.

The proposed baccalaureate degree program being planned at the University of Alberta will provide an environment where students can experience an understanding and appreciation of a broad field of knowledge while mastering a specific area of

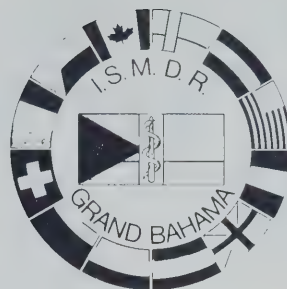
study. The Program will include, consistent with job market demands, options for majoring in public health, education or research.

The curriculum model is designed to develop a high level of proficiency in clinical, managerial, educational and research skills; to facilitate a totally current education, one that develops an awareness of the important relationship between dental hygiene practice and related research. The long range goals of the proposed program are the development of a more comprehensive scientific framework for dental hygiene and to increase the numbers of dental hygienists prepared to function in extended roles in public health/community dentistry, administration, education, industry and research and who are qualified to assume leadership roles in the profession.

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PRESCRIPTION RADIOGRAPHY

A NEW CONCEPT FOR RADIATION PROTECTION IN DENTAL PRACTICE

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ABSTRACT

The continuing increase in both the number of dental films taken and the proportion of the population exposed to dental radiation has created a public perception of indiscriminate usage. Of particular concern is the use of routine or "screening" radiography which has little scientific basis and is not compatible with the current philosophy and published guidelines for the use of diagnostic radiation. The unfavourable public image and the frustration of dealing with it can be readily eliminated by adhering to the principles of the International Commission on Radiological Protection, as expressed in the concept of prescription radiography.

SOMMAIRE

L'incessante augmentation du nombre de radiographies dentaires prises et du pourcentage du public exposé aux radiations a fait naître dans l'esprit de celui-ci l'idée que les dentistes utilisent les radiographies à tort et à travers. On s'inquiète surtout des radiographies de "dépistage" prises de façon routinière, ce qui ne se justifie guère sur le plan scientifique et n'est conforme ni à la philosophie actuelle ni aux directives publiées touchant l'usage des radiographies pour fins de diagnostic. L'idée négative entretenue par le public et les frustrations qui en découlent peuvent être éliminées en suivant les principes de la Commission internationale de protection contre les radiations formulés en rapport avec les radiographies.

INTRODUCTION

The science and art of radiography has been, for many years, an essential part of the practice of dentistry. Dental diagnosis, treatment and disease prevention depend in many instances on the information derived from properly exposed and processed radiographs. Currently, the need to continue efforts to improve radiation hygiene is an issue of high priority for the scientific and health communities. Government regulatory agencies, consumer advocacy groups and the public press have stated views on this subject which have serious implications for the practice of dental radiography. In view of the concerns expressed and the measures proposed, dentistry and medicine are reassessing both the methodology and the philosophy of radiation usage.

The purpose of this article is to review pertinent developments in dental radiography in the post-war decades and to examine the impact of the current philosophy of diagnostic radiation usage on these established practices. In doing so, we will show that the profession has consistently adopted better radiation hygiene methods. We will discuss the current concerns about the health hazards from repeated low-level exposure to x-radiation and evaluate the reasons why dental radiographic practices are identified as a problem, in spite of a relatively minor contribution to total patient exposure. The recommendations of the scientific, regulatory and professional bodies, both national and international, will be summarized.

These recommendations have produced significant changes in dental school curricula and will increasingly alter our traditional concept of dental radiography. Detailed suggestions are presented for the practical application of the contemporary concept of prescription radiography.

DENTAL RADIOGRAPHY — A FOCUS OF CONCERN

Why has the dental profession's use of radiation been one of the main targets for criticism? This attention seems to be disproportionate to our contribution to patient dosage since, out of the total amount estimated for all forms of diagnostic radiation, dentistry accounts for less than 3 per cent.¹ National and international organizations have identified certain features of dental radiation use as items of concern. Before examining these specifically, there are some general facts* which focus attention on the profession:

- 1) Dentists own over 50 per cent of diagnostic x-ray generators.²
- 2) The profit from the use of x-rays is seen by consumer advocate groups to create a vested interest in the use of radiation.
- 3) In the United States, dental radiographs account for 30 per cent of all diagnostic films.³ In 1970 an estimated 278 million intraoral radiographs were made, and by 1980, this number had grown to 400 million.⁴

*The figures used are from the United States but are closely applicable to most Western countries.

4) Radiography is the most frequently provided dental service. Over 50 per cent of the population of the United States visit the dentist annually and 80 per cent of these patients have radiographs taken.⁵

Similar data have been reported from Sweden, Great Britain and Japan. In these countries, dramatic increases in the number of dental radiographs have occurred in the last two decades.⁶ In Great Britain, dental radiography has been described as a "growth industry", particularly in reference to the expanded use of pantomography.⁷

In addition to these general facts, some specific practices have been identified which, if they are to be continued, will require proof of patient benefit. These are:

- 1) The routine exposure of children and adolescents to a set number of radiographs at first visit and then at specific intervals. Most parental and medical concern arises from this practice.

- 2) Similar surveys for adult patients.

- 3) The use of multiple intraoral radiographs, resulting in overlapping exposure of tissue.

- 4) A total reliance on direct-exposure, radiation-intensive emulsions for intraoral films.

- 5) The use of "administrative" radiographs.

- 6) The use of uncertified ancillary personnel as radiographic technicians.

- 7) The lack of a universal inspection in private offices to ensure equipment efficiency.

MINIMIZING PATIENT EXPOSURE IN DIAGNOSTIC RADIOGRAPHY

The Hazards of Low Levels of Ionizing Radiation

Humans have always been exposed to natural radiation. The amount depends on geographical and geological factors such as altitude and mineral content of the local terrain. However, in this, the latter half of the twentieth century, population exposure has doubled, with over 90 per cent of this increase due to the diagnostic use of man-made radiation.⁸ This large increase has logically led to the question of whether there is additional risk from such low-level radiation. It has been known for many years that large doses, i.e. 100 rads or more, cause physical and chemical cellular change which can lead to neoplasia or cell death. Diagnostic radiography generally involves repeated exposures of less than 20 rads of absorbed radiation. While most of the damage produced by this level of radiation is reversed by healing processes, a proportion of the deleterious effects are irreversible and therefore cumulative. The most significant consequences of radiation on cells are muta-

genic and carcinogenic. Currently, more stress is placed on the danger of the carcinogenic effect on individuals, with a lessening of the concern for the hereditary effects of population exposure. The risk of mutation, for example, for a dental radiographic examination is only of the order of 1 per billion.⁹ On the other hand, the probability of the carcinogenic effect is believed to be stochastic, i.e. although the risk is proportional to the dose, there is no known lower limit or threshold. The consequences are severe and independent of the quantity of radiation.¹⁰ It should be clearly understood that risk estimates at low doses are based mostly upon extrapolation and interpretation of data at higher doses on humans and not upon direct proof. There is also a considerable body of evidence on the somatic effects of repeated low level exposure in experimental animal studies. However, until there is proof that these effects *do not occur* in humans, it is prudent to adopt a conservative philosophy.

The Risk/Benefit Concept

There have been enormous advances in the efficiency of radiographic technique since its introduction as a diagnostic method. Under the stimulus of the International Commission on Radiological Protection (I.C.R.P.) and equivalent national organizations, continuous improvements have been made in methods of protecting operating personnel and patients. Subsequent to achieving significant improvements in technical efficiency, efforts were directed to evaluate the productivity of both diagnostic and investigative radiography. The concept of risk vs benefit was developed to achieve a more selective and productive use of radiation. This concept implies that if there is a probability of obtaining information of benefit to the patient, then the presumed inherent risk is acceptable and the procedure can be justified. As a result of application of this principle, most of the mass screening programs have been abandoned and substantial reductions in routine diagnostic use have occurred.¹¹ For example, the only routine investigative radiography currently in use in medicine is mammography for women over 45 years of age, because of the high incidence of breast cancer in this group.¹²

Recommendations of the International Commission on Radiological Protection

This Commission was created in 1928 by the International Congress on Radiology because of growing concern about the biological effects of the use of ionizing radiation. The Congress is composed of scientific delegations from most of the world's

nations and it selects the members of the Commission. The Commission has an official working relationship with other major international health agencies such as the World Health Organization, the International Atomic Energy Agency and the United Nations Scientific Committee on the Effects of Atomic Radiation. Based on the premise that there is no "safe" dose of radiation, the I.C.R.P. issues recommendations which influence the practice of all the professions that use diagnostic radiology. The principles of justification and technical efficiency underlie these recommendations.¹³ In this context, justification means that the physician or dentist, using professional judgement, proposes radiological examination only where information of net benefit to the patient can be anticipated. In the Commission's view, it is particularly important to justify radiography in the management of non-malignant conditions, such as those most often encountered in dental practice, since the most significant risk from exposure to x-radiation is the induction of malignancy. The development of selection criteria is encouraged to improve the decision-making process and thus the efficacy of radiography. The Commission states that the physician should "refrain from making routine requests which are not based upon clinical indications."¹⁴ The application of professional judgement aided by selection criteria should significantly reduce the use of unproductive radiography.

Technical efficiency is the second principle governing the use of diagnostic radiography. According to the Commission, there can be no excuse for examinations carried out with excessive exposure. Efforts should be made to confine the dose to the tissues directly involved in the diagnosis and thus reduce the total volume of tissue irradiated. This is an application of the principle that radiation doses should be kept "As Low As Reasonably Achievable." (ALARA)

In summary, the I.C.R.P. recommends that radiography can contribute maximum patient benefit when clearly indicated and competently performed. Additionally, the Commission observes that if patients were informed of this concept, they would be better able to place their concerns in proper perspective.

THE DEVELOPMENT OF RADIOGRAPHY IN DENTAL PRACTICE

The potential for radiography in dental diagnosis was apparent in the early years after Roentgen's discovery of x-radiation. The significance of intraoral radiography, especially the bitewing film for caries diagnosis, was well-established by the time of the Second World War. In the post-war

years, major improvements in films and generators combined with new concepts in the teaching of diagnosis and radiology led to the expansion of radiography in dental practice. New departments were established to teach the concept of comprehensive examination as a necessary first step to treatment planning and prevention. The use of routine radiographic surveys (the complete mouth survey or C.M.S.) became an integral part of the examination of all new patients. For those patients with signs or symptoms, the radiographic survey was an effective application of diagnostic radiation. However, for some patients the protocol of a routine survey of a pre-determined number of radiographs would in today's terms be described as investigative or screening radiography. One of the stated objectives of survey radiography is the discovery of hidden or occult disease. More recently, the same claim has been made to justify the use of pantomography in a screening role. In medicine, investigative radiography was used in mass screenings for breast cancer, chest films and spinal examinations for workers in heavy industry. It was the era of the annual medical checkup, when it was argued that early disclosure of hidden lesions, i.e. before signs of disease were present, would improve the chances of suc-

cessful treatment and possibly decrease costs.

Achievements in Dose Reduction in Dentistry

During the period of rapid expansion in the diagnostic use of radiation, a parallel effort to improve radiation hygiene was developing. This was based upon an accumulating body of scientific data on the hazards of ionizing radiation. While the consequences of acute radiation exposure were known early in this century, the insidious latent effects of chronic, low-level exposure on personnel working with radiation or radioactive material became evident only after years of use. Acting on this knowledge, the I.C.R.P. developed the concept of maximum permissible dose and barrier protection for radiation workers. Once this problem was resolved, the attention of the scientific community focused on the development of measures to reduce patient exposure during diagnostic radiography. The effects of these efforts on dentistry would be dramatic.

Although dental x-ray tubes of the post-war period were technically advanced even by present standards, radiation usage was inefficient compared with current practice. To illustrate the significance of improvements adopted in the 1960s, we will out-

line the standard technique of that period and describe how relatively few modifications contributed to a remarkable improvement in the efficient use of diagnostic radiation.

The generators were operated at 60 or 65 kVp and 10 mA. The focus-film distance (FFD) was eight inches, with a short plastic cone as the usual aiming device. Filtration, if present, consisted of 0.5 mm of aluminum built into the tube port. The beam diameter at the skin measured four to six inches and the film used would be classed today by the American National Standards Institute as Speed C (e.g. Kodak Radiatized). The entrance skin exposure (ESE) of this technique averaged about 5R per intraoral radiograph. A complete mouth series of 20 films (16 periapicals and four bitewings) would expose a patient to 100R of primary radiation. By today's standards, this is a very significant amount of radiation, even though it represented the best practice of the period.

Major reductions in exposure were achieved by increased filtration, collimation of the beam and the use of faster film. Other modifications of technique such as the use of higher kilovoltages and longer focus-to-film distances with open-ended tubes effected minor but nonetheless useful reduc-

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tions. The unfiltered beam from a dental generator contains a proportion of soft x-rays which are absorbed by the patient without contributing to the image. Most of these low-energy photons were removed by the addition of metal filters, resulting in a beam containing a higher proportion of useful rays. This added filtration reduced radiation exposure to patients by 50 per cent. Current regulations require that 1.5 mm of aluminum be present in all dental generators operating at 70 kVp or below; where the units operate above 70 kVp, 2.5 mm of aluminum is required. To reduce the beam diameter to our present mandatory 2.75 inches, collimators (lead washers) were inserted. These effected a further 40-50 per cent reduction in radiation exposure. However, the most significant reduction was achieved by the introduction of Speed D film. This film (e.g. Kodak Ultra-Speed) was approximately four times faster than the Radiatized Film and reduced exposures by 75 per cent. These modifications decreased patient exposure for a 20-film CMS from 100 R to less than 5 R or approximately 200-300 mR per film. **An entire CMS can be made today with less radiation than was previously required for a single periapical film.** This voluntary achievement should be a source of pride to the profession.

The Validity of Screening Radiography

Subsequent to the achievement of significant improvements in the efficiency of our techniques, the productivity or net benefit to the patient from our routine surveys has been the focus of recent studies on dental radiographic practices. The dental literature over the past 20 years contains many reports on the information yield from the routine use of CMS and/or pantomography. Cumulative results are difficult to evaluate because of variations in the populations studied and the kinds of items that were tabulated. The data from the major studies of the past years are presented in **Table 1**. The results taken from these papers have been condensed and arranged into dental and non-dental categories. Accommodations had to be made for imprecise nomenclature and varying definitions of what constitutes a "pathological" entity. The major findings were impacted teeth, osteitis and retained roots. All other findings were relatively rare. In some studies, the term osteitis was applied to all forms of bone resorption around teeth, including periodontal disease. The incidence of retained roots was 7.8 per cent, with a slightly higher percentage (9.5 per cent) in edentulous mouths.

There was no indication whether these roots were the cause of symptoms or would have required extraction.

Some difficulty in interpretation existed in the findings of 0.77 per cent cysts since they were rarely classified by the authors. Therefore, we are reporting the combined results as dental pathology, although recognizing the fact that a small number were cysts of non-dental origin. The odontogenic benign tumours consisted entirely of odontomes although one "cementoma" was reported. By far, the most common finding relating to the maxillary sinus was the mucous retention cyst. Nonodontogenic benign tumours were reported in 0.05 per cent of the surveys. Of these, most were ossifying fibromas, two were osteomas and there was one central giant cell granuloma. The single malignant tumour was a multiple myeloma. The study which reported this tumour, did not indicate whether the patient had other evidence of the disease.²⁶ Virtually all the foreign bodies were amalgam fragments. Very often the authors of the surveys reported radiolucencies and radiopacities with neither specific diagnosis nor indication whether treatment would be required. We have summarized these and reported them as unspecified radiolucencies and radiopacities.

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TABLE I

Information Yield from 34,421 Radiographic Surveys¹⁵⁻²⁹

DENTAL FINDINGS	PERCENT PREVALENCE
Impacted teeth	13.3
Osteitis	10.1
Retained roots	7.8
Cysts	.77
Supernumerary teeth	.34
Neoplasia	
Benign	.06
Malignant	.00
NON-DENTAL FINDINGS	
Sinus abnormalities	1.2
Dysplasia	.04
Neoplasia	
Benign	.05
Malignant	.003
OTHER	
Radiolucency + radiopacity (unspecified)	1.2
Calcified stylohyoid ligament	4.9
Foreign bodies	.81

TABLE II

Selection criteria for asymptomatic patients

Physical Sign or Historical Criterion	Examples of Potential Diagnostic Information Yield
Missing tooth — one or more	Root tips, agenesis, impaction, cyst or neoplasm
Loss of coronal tooth substance attributable to trauma or caries	Proximity to pulp, periapical osteitis, root fracture
Change in tooth translucency or color	Caries, periapical osteitis
Cracks in enamel or restoration	Extent of fracture, recurrent caries
Abnormal mobility	Loss of periodontal bone support, neoplasia
Unexplained change in bony contour	Cyst, dysplasia, neoplasia
True periodontal pocket	Loss of supporting alveolar bone
Unexplained colour change in mucosa	Cyst, haemangioma, giant cell granuloma
Draining sinus	Periapical infection
Malposed tooth	Odontoma, supernumerary
Some malformations of teeth	Dens invaginatus
History of trauma, pain, swelling, difficult extraction, hereditary predisposition	Fracture, osteitis, retained root tips, developmental anomaly

It can be assumed that many of the patients surveyed (Table I) had clinical signs or symptoms which would have prompted an examiner to prescribe one or more radiographs. When this factor is taken into consideration, the percentages of **incidentally** discovered occult disease disclosed by radiography would be significantly reduced. The chance discovery of serious occult disease such as neoplasia is negligible. Conclusions on the importance of screening films have been based on the percentage of findings rather than on a critical analysis of their clinical significance. As well, in reporting findings there is no discrimination between those conditions which would have been suspected from clinical examination and purely occult or incidental findings. However, more recent studies^{30,31} have purposefully attempted to analyze screening radiography in terms of risk vs. patient benefit i.e. how many of these incidental findings have any bearing on patient health and thus require treatment. Barrett et al.³⁰ found that of 1,000 patients routinely examined by pantomographs, only 12 patients had pathoses that required definitive treatment and **none** required urgent attention. These studies conclude that screening examinations are unproductive and do not conform to the current philosophy of radiation hygiene.

Current Recommendations of National Agencies and Professional Dental Organizations

Most of the technically advanced countries have official agencies or institutes which analyze, develop and disseminate information and issue recommendations on all aspects of radiation used in the health sciences. In Canada, there is the Radiation Protection Bureau of Health and Welfare Canada and in Britain the National Radiological Protection Board. In the United States, there are the Bureau of Radiological Health (U.S. Department of Health) and the National Council on Radiation Protection (NCRP). In Canada the Radiation Protection Bureau has published Safety Codes which were developed in consultation with the official organizations representing every branch of the Health Sciences. The most recent code for dental radiographic practice (Safety Code-22) makes the following recommendations:³²

- 1) "the prescription of an x-ray examination *should* only be based on a clinical evaluation of the patient."
- 2) "routine or screening examinations in which there is no prior clinical evaluation *should not be prescribed* . . . and this is especially to be deplored when children are exposed."

National professional associations have promulgated recommendations on radiographic practice based upon the principles developed by the I.C.R.P. The following excerpts are from the recommendations of the Canadian Dental Association.³³

- 1) "the prescription of an x-ray examination by a licensed dentist should only be based on a clinical examination."
- 2) "the justification for taking dental radiographs should be determined by a perceived need to obtain specific information which could contribute to a correct diagnosis or prevention rather than utilizing the concept of routine periodic examination with or without having seen the patient beforehand."

The following excerpts are from the recently revised recommendations of the American Dental Association:³⁴

- 1) "the nature and extent of diagnosis required for patient care, rather than the concept of routine use of x-rays as a part of periodic examination of all patients, constitute the only rational basis for determining the need, type and frequency of radiographic examination."
- 2) "as each patient is different from the next, so should radiographic examination be individualized for each patient."
- 3) "decisions regarding the use of radiography should be based on a thorough clinical examination and the medical and dental history of the patient."

Clearly, the statements of these organizations endorse the I.C.R.P. principles of radiation use which is a distinct departure from some of our customary practices. The concept of prescription radiography based upon the findings of clinical examination rather than routine radiography has been introduced into the curriculum of most dental schools. Indeed, in the United States, this is a required condition for accreditation by the Council on Dental Education. Increasingly, texts and articles dealing with radiography and diagnosis emphasize these principles.

PRESCRIPTION RADIOGRAPHY FOR DENTAL PRACTICE

There has been an understandable but quite erroneous impression that the current recommendations for radiation reduction imply an across-the-board reduction in the number of films taken. When this misconception is held, there follows a logical and often vigorously expressed fear that dental practice will be hampered and the quality of service will suffer; and also the fear of professional negligence if screening radiographs are not taken. **There has never been a recommendation to reduce the number of films required to establish a diagnosis and treatment plan for those conditions disclosed by clinical exami-**

nation. Rather, current radiation hygiene recommendations are intended to eliminate radiographs ordered without prior examination or where no clinical indication is disclosed by examination.

The Development and Use of Selection Criteria

The concept of selection criteria has been proposed to facilitate the application of prescription radiography. These criteria are specific clinical and/or history findings which indicate the need for certain types and numbers of radiographs, with the expectation that these will provide information directly related to the solution of diagnostic and treatment problems. The use of such criteria (also called high yield criteria) has been studied extensively in medicine, particularly in hospital practice. They have been shown to significantly reduce over-utilization and increase the efficacy of the radiographic method.³⁵ Recently, dental educators have attempted to develop protocols with appropriate selection criteria for use in dentistry.^{36, 37} The American Academy of Dental Radiology has established a Dental X-ray Selection Criteria Panel to develop selection criteria for dental x-ray examination of asymptomatic patients. Continued validation through research will be required.

Selection criteria for symptomatic patients: The use of selection criteria is best illustrated for the patient with a complaint. The classic signs and symptoms of dental or oral disease (pain, swelling, fractures of tooth or bone, caries etc.) are obvious clinical indications for radiography as an aid in diagnosis and management. The number and types of radiographs are determined directly by the problem. Misuse by under-utilization, for example the single periapical, could be a greater concern than over-utilization. In many instances at least two intraoral films are indicated (using different projection angles), supplemented as occasion demands by extraoral films.

Selection criteria for asymptomatic patients: For the patients who are asymptomatic, the application of selection criteria is a substantial departure from our traditional approach. Some of these patients may have physical signs and/or pertinent history data that require further diagnostic evaluation. For these, radiography may be the preferred if not the only method of investigation. On the other hand, many patients have neither symptoms nor physical signs of disease. Caution must be taken in developing and applying selection criteria for this group.

For asymptomatic patients with physical signs and/or pertinent history, selection criteria can be readily identified. In **Table II**, are listed many of the common clinical and

historical findings for which there is a reasonable expectation that radiographs will disclose information of benefit to the patient. It is recognized that not every sign or history finding will indicate a need for radiographic examination. For example, there are many soft tissue lesions where radiography is most unlikely to provide any useful information.

For asymptomatic patients without physical signs or pertinent history data, we suggest that selection criteria are not appropriate. Until very recently, it has been accepted protocol that even in the absence of clinical indications, some form of routine radiographic examination should be made for these patients. The routine use of radiography, as noted earlier, was considered to be an essential part of the comprehensive oral examination. These "check-up" films were meant to ensure that no hidden or occult disease, especially malignancy, was overlooked. Such films have often been described as baseline or scout films. In our interpretation of the current concept of radiographic practice, no films are indicated for this group of asymptomatic patients.

In spite of approved and published guidelines that radiography should be based upon specific clinical and/or historical criteria, there is evident reluctance by some to apply this principle. At a recent dental conference which reviewed radiographic practices for children, the group at highest risk, a protocol had been suggested which apparently is the antithesis of the recommended guidelines. The following quotation is taken from an article summarizing the results of that conference: "Radiographs may also be made in the absence of any clinically apparent problem . . ."³⁷ The argument used to support the use of routine radiographs is the early detection of conditions such as supernumerary teeth, agenesis of permanent

teeth, fused or geminated teeth and other developmental anomalies. In addition, assessing the dental age and monitoring dental development have been given as appropriate "criteria".

What is the evidence for the efficacy of early and repeated radiography for the child-adolescent patient? **Table III** shows the combined data from the major studies most frequently used in support of this practice. Evaluation of the data in this table indicates a low yield of serious disease: i.e., those conditions which require either urgent or elective treatment. Many of these patients would exhibit clinical signs indicating a need for radiography. For example, in one study of 70 patients with supernumeraries, over 74 per cent had signs such as delayed eruption, rotation or displacement.⁴³ This significantly reduces the per cent yield of "occult" findings. As well, a great percentage of the conditions found are not treatable upon early disclosure, if at all. None of these studies in **Table III** reported any disclosure of neoplasia, metabolic disturbances or other significant disease. In the light of these considerations, there is scant justification for initial screening of asymptomatic children without signs or pertinent history. A recent, well-documented review article in the *Journal of Dentistry for Children*,⁴⁴ supports our conclusion.

In summary, the use of criteria which are not based upon clinical indications subverts the current concept of diagnostic radiography. It seems to be an attempt to support the continued use of screening radiography masquerading as prescription radiography.

The Detection of Dental Caries — A Limited Role for Screening Radiography: The incidence of dental caries and the severe restrictions on clinical examination of posterior proximal surfaces, are strong arguments for the use of bitewings as a limited form of screening radiography for

TABLE III

Information yield from screening radiography in children

Author	No. of Patients	Age Range	Percent Hypodontia	Percent Supernumeraries	Percent Fusion/Gemination
Clayton, 1956 ³⁸	3,557	3-12	6.0	1.9	0.5
Castaldi, 1966 ³⁹	457	6-9	4.1	3.1	0.2
McKibben, 1971 ⁴⁰	1,500	3-12	5.4	1.5	0.4
Bergstrom, 1977 ⁴¹	2,589	8-9	7.4	1.5	0
Buenaviaje, 1984 ⁴²	2,439	2-12	3.7	0.5	0.5
Totals and Averages	10,542	2-12	5.3	1.7	0.3

the new patient.⁴⁵ The absence of proximal contact, which permits direct clinical inspection and the availability of recent radiographs would be exceptions to this application. The validity of routinely repeating bitewings at intervals (e.g. every six months) has not been established.¹² Recently, a protocol was proposed which advocates a rational approach for the use of these radiographs.⁴⁶ Fig. 1 illustrates such a scheme. After the clinical examination, including bitewing radiographs, patients are assigned to either a high or low risk group. The time intervals suggested are guidelines only and should be modified by clinical judgement. They are not to be construed as recommendations for clinical examination intervals, which are determined as well on an individual basis. Although the use of such a protocol has not been validated by research, it seems to be a pragmatic approach based upon knowledge of the pathogenesis and epidemiology of dental caries.

Non-diagnostic Radiography

Radiography related to Treatment: During the development of treatment plans or in the course of treatment, the application of radiography may be essential. Some examples of these situations follow:

- 1) Fixed or removable prosthetics – Even in the absence of signs or symptoms, prior knowledge of root number, length, shape and the level of bone support is critical to proper execution of these procedures.
- 2) Endodontics – this form of treatment requires radiographs during and after the procedure.
- 3) Orthodontics – Radiographs are necessary for pre-treatment analysis and to monitor treatment progress.
- 4) Surgical – Radiographic information is critical in planning the procedure to avoid surgical misadventure and for postoperative evaluation.

Administrative radiographs: By definition, these are radiographs taken for

purposes other than the diagnostic and treatment needs of the patient.⁴⁷ Some examples are:

- 1) Treatment verification films required by insurance carriers, teaching clinics or licensing bodies.
- 2) Radiographs ordered in teaching programmes solely to meet numerical clinical requirements or to demonstrate competence. Also, the retaking of films for technical or aesthetic reasons, even though the image detail may be sufficient for the intended diagnostic use.
- 3) Screening radiographs to assess patient acceptability for teaching clinics.
- 4) A requirement of a specific number of films used in licensing and specialty examination.

In the present context, there is great difficulty in finding any justification for these practices.

CONCLUSION

While addressing the continuing and legitimate concerns about diagnostic radiation exposure, it is important that our present practices be judged in terms of the accepted techniques of the recent past. From this perspective, it should be evident that modern radiographic practice has reached a very high level of efficiency. The potential for further improving efficiency through the use of faster film, rectangular collimation, xeroradiography and rare earth screen/film systems, should continue to be explored. However, in spite of such opportunities for technical improvements, further major reductions in both medicine and dentistry can likely be achieved only by reducing overutilization through the application of the I.C.R.P. principle of justification.

The public perception that dental radiography is a problem in radiation hygiene has its basis in the belief that we do not use sufficient discretion in the application of this potentially harmful diagnostic aid. The widespread understanding by dentists that routine or screening radiographs serve an

important public health function has little if any scientific basis. The customary defence of dismissing such exposures as insignificant and therefore "safe" is unquestionably contrary to the current philosophy of radiation usage. If radiographs are taken only where specific clinical and/or history findings indicate a diagnostic need, most, if not all the criticism would be defused.

Our professional organizations have endorsed the philosophy of the I.C.R.P. and have published recommendations which conform to currently accepted principles of diagnostic radiation hygiene. Confidence in our practices can be restored without jeopardy or cost by simply following these recommendations. We hope this review will encourage dentists to assess their radiographic practices and to make the appropriate adjustments. If we do not respond constructively, then it is becoming increasingly apparent that radiation usage will be directed not by the dentist but by governmental regulatory bodies.

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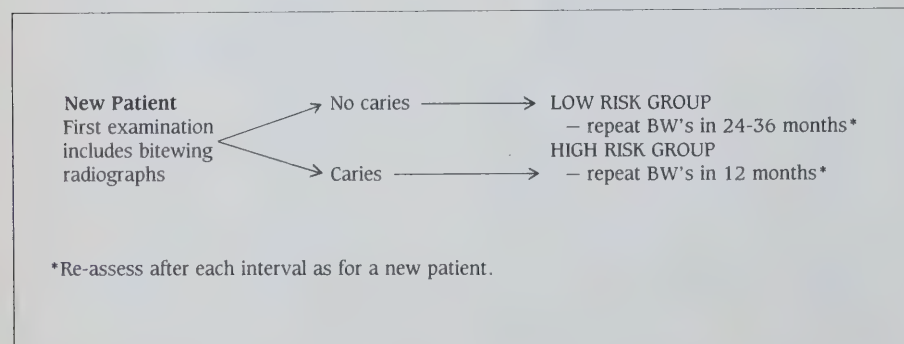
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FIGURE 1

Screening radiography for dental caries



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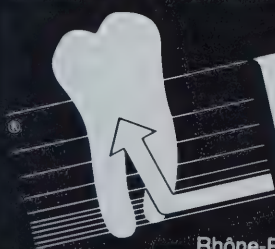
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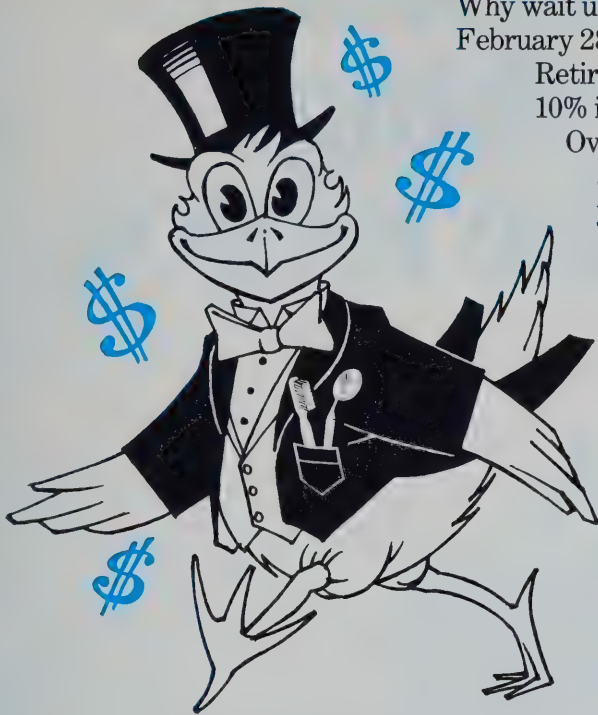
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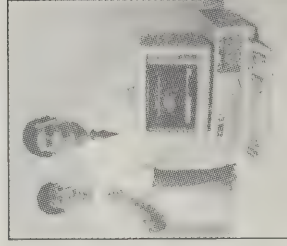
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A SURVEY OF ALL DENTAL X-RAY MACHINES IN BRITISH COLUMBIA USING TLD CHIPS 1981-83

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ABSTRACT

A TLD dental survey was used to determine dental bitewing x-ray exposure variations in the Province of British Columbia. The results were used as a screening procedure for follow-up investigations by Radiation Protection Officers. Approximately 40 per cent of the dental x-ray units produced a standard bitewing exposure in excess of the recommended exposure guidelines. Follow-up surveys have revealed that the major causes of these over-exposures are darkroom/chemistry (59.8 per cent), obsolescence (19.0 per cent) and mechanical faults (10.2 per cent). In addition to securing periodic monitoring, dentists need to ensure that their radiographic equipment meets modern standards and that adequate darkroom procedures are maintained, in order to minimize the radiation exposure to their patients and protect the health of the public.

SOMMAIRE

En Colombie-Britannique, on a utilisé des dosimètres thermoluminescents afin de déterminer les taux de radiations émis lors des radiographies péricoronaires. Les agents de protection contre les radiations se sont servi de cette méthode pour repérer les appareils défectueux et pousser plus loin leur enquête. Ainsi, on a découvert qu'environ 40 pour cent des appareils de radiographie dentaire émettent des radiations dépassant les normes recommandées. Par la suite, les enquêtes de contrôle ont révélé que les principales causes

de surexposition sont les suivantes: les produits chimiques en chambre noire (59,8 pour cent), l'obsolescence des appareils (19 pour cent) et les défauts mécaniques (10,2 pour cent). En plus de s'assurer que ses appareils sont soumis à des vérifications périodiques, le dentiste doit veiller à ce que son équipement radiographique réponde aux normes modernes et que les procédures de la chambre noire soient adéquates afin de réduire le plus possible l'exposition aux radiations pour les patients et protéger la santé du public.

The Ministry of Health of British Columbia has provided an inspection service for x-ray machines in dental offices for the past 18 years. Surveys of the units have been, for the most part, carried out upon request of the dental offices. There are, however, some 2,400 dental x-ray units in 1,400 offices throughout the province and the majority of these units have not been regularly surveyed for the following reasons:

1. A detailed inspection requires one half to four hours, depending upon circumstances. Time, therefore, limited the number of units that could be surveyed.
2. The majority of the dentists who requested surveys were a) located in the lower mainland and b) represented above average x-ray facilities.
3. It was more difficult to arrange schedules for inspections by the Radiation Protection Officer in areas remote to the lower mainland.

Therefore, it was decided to conduct a province-wide TLD Dental Survey, which

is a screening procedure devised to carry out a relatively inexpensive, comprehensive survey which will serve to locate the troublesome machines. These latter units can then be subjected to the traditional inspection.

REVIEW

The previous surveys conducted by the Ministry of Health have attempted to identify the general conditions in dental operations which pertain to x-ray equipment and environs. This included identification of old or obsolete equipment which contained no shielding, units which had shielding but functioned at low kVp (less than the 50 kVp now required by the Radiation Emitting Devices Act), investigation of beam collimation and beam filtration, and finally, the determination of the average exposure dose from bitewing or a posterior interproximal examination. The number of units investigated in these studies is summarized in Table I.¹

TABLE I

Number of dental x-ray machines surveyed by year

YEAR OF SURVEY	NO. OF X-RAY UNITS SURVEYED
1965	316
1970/71	287
1976	298
1978	252

TABLE II

Dental x-ray machine performance by manufacturer and TLD exposure

MAKE	NUMBER OF UNITS	AVG EXPOSURE IN mR	AVG kVp	% IN EXCESS OF DRH RECOMMENDATIONS
Belmont	49	267	68	10%
G.E.	679	334	78	52%
Phillips	173	622	55	55%
Ritter	677	327	79	49%
Siemens	344	519	59	42%
SS White	188	284	78	40%
Others	293	393	77	54%
	2,403	381	74	48%

TABLE III

Results of follow-up inspections of dental x-ray machines exceeding recommended exposure value by principal cause

FAULT	NUMBER	PERCENT
None	43	9.5
Mechanical	46	10.2
Filtration	7	1.5
Obsolescence	86	19.0
Darkroom/Chemistry	271	59.8
Total	453	100.0

FIGURE 1

Comparison between dental radiation exposures per film by dental x-ray machines surveyed in 1965 and 1976: British Columbia

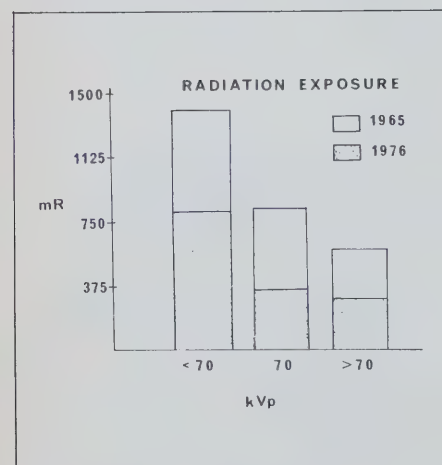


FIGURE 2

Comparison of variation in cone length of dental x-ray machines surveyed in 1976: British Columbia

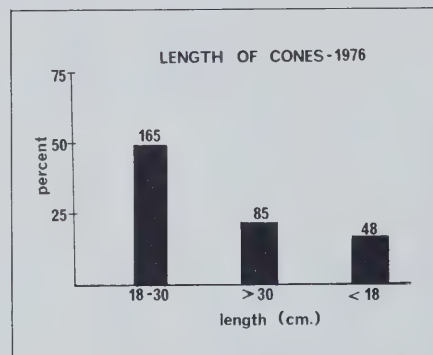
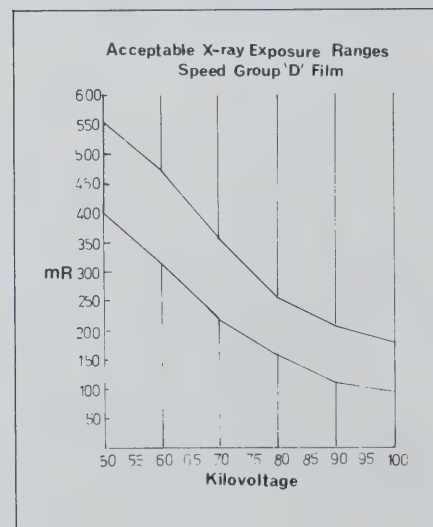


FIGURE 3

Distribution of acceptable dental x-ray exposure ranges speed group 'D' film



In the 1965 survey, two problem areas were immediately identified for action and follow-up. The first area of concern was in-beam collimators. In 1965, more than 65 per cent of the units surveyed required additional collimation; these collimators were provided free of charge to dentists. The second area of concern was filtration. In this case, 70 per cent of the 316 units surveyed required that filtration be added to the unit. Filters for dental x-ray units were also provided free of charge.

As would be expected due to the lack of filtration, the radiation entrance to the patient was very high. In 1965, the exposure was approximately 1400 mR/film. Later surveys showed that the radiation exposure was reduced significantly. This is illustrated in Figure 1, which compares radiation exposures at various kVp's in 1965 with those in 1976. The average exposure in 1976 was 502 mR but was reduced to 384 mR in 1978. Figure 2 shows the cone length distribution in 1976. As pointed out previously, the sample group was small and biased to those requesting the service.

The U.S. Food and Drug Administration's National Center for the Devices and Radiological Health (DRH) conducted a TLD dental survey in the United States. In their initial studies, they found skin entrance doses varied from 100 to over 5000 mR per film.² They then produced a series of radiographs at selected kVp settings from 50 to 90 kVp, using a dental phantom. Subsequently, a panel of dentists was able to establish a range of exposures which would produce acceptable radiographs at each kVp setting (Fig. 3).

In the first state-wide survey performed by DRH, they found 46 per cent of the dental x-ray exposures were in excess of the upper limits of the exposure ranges.² Poor darkroom processing techniques were the principal cause of the overexposure.

We decided to undertake a similar TLD dental survey throughout the Province of British Columbia, but using a larger number of TLD's in each package.

PROCEDURE

The TLD Dental Survey package consists of three thermoluminescent dosimeters (TLD's), which are exposed similarly as a standard bitewing x-ray. The card which holds the TLD's also contains the instructions for their exposure.

The cards are then returned to the laboratory where the chips are read using a TLD reader. The chips are heated in the reader and give off light that is proportional to the x-ray exposure.³ A set of standards are run at the same time which enables one to calculate (with the use of a computer) the bitewing exposure.

The bitewing exposure data are used to determine if a follow-up inspection by a Radiation Protection Officer is necessary. Faulty equipment or development techniques will produce a high exposure and will require corrective action. Scatter radiation or tube head leakage are not determined from the TLD package but these do not, in practice, present a radiation problem with dental equipment. Barriers are not assessed with the TLD cards but these are evaluated at the design stage or by contacting the Radiation Protection Office.

The first attempt to distribute the TLD cards to dentists throughout the province was made in 1978. The preliminary test set was sent out by mail; however, this first attempt was a failure.⁴ Many TLD cards (worth about \$20.00 each) were never returned. Presumably, they were destroyed along with the numerous items of advertising mail received at the dental offices. Those that were returned contained information that was often inadequate or incorrect, and other packages were damaged in transit. It appeared that the most effective method for such a survey would be to involve ministerial staff who could be trained to carry out the procedures in a consistent manner.

The Dental Health Services Division agreed to carry through the project and to reach all offices in every region of the province. There are 18 health units throughout the province which are grouped into six regions, each at that time were under the supervision of a Regional Dental Consultant. The metropolitan areas have their own dental divisions in their autonomous health department — the Capital Regional District, City of Vancouver, and the Municipalities of West Vancouver, North Vancouver, Burnaby and Richmond. Plans were made to have the program carried out in an orderly fashion throughout the province. Where there were sufficient numbers of hygienists and dental assistants on staff, their services were used. All the Regional Dental Consultants took part, as well as organizing the operation in their area. In each region, all participants were provided with an orientation period by members of the Radiation Protection Service.

In the first instance, a pilot survey was carried out in the Chilliwack/Abbotsford region during the summer months of 1980. Some 64 x-ray machines were checked and the results analysed.⁵

In order to facilitate the visits to the offices, a communication was sent out to each office by the Regional Dental Consultant. This contained a circular letter, under the signature of the President of the College of Dental Surgeons, which explained the purpose and nature of the survey. Along with this was a memorandum from the Regional Dental Consultant informing of the approximate

FIGURE 4

Distribution of dental x-ray machines by radiation per exposure British Columbia 1981-83

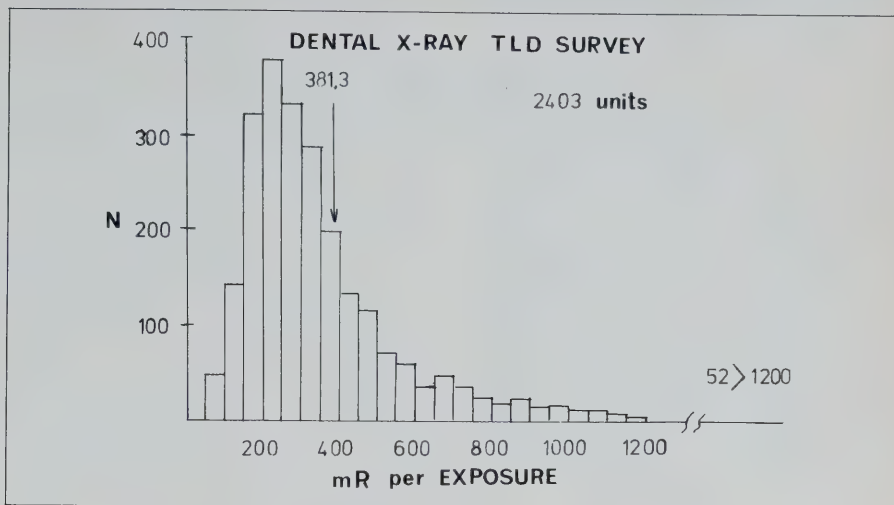


FIGURE 5

Distribution of 50 kVp dental x-ray machines by radiation per exposure British Columbia 1981-83

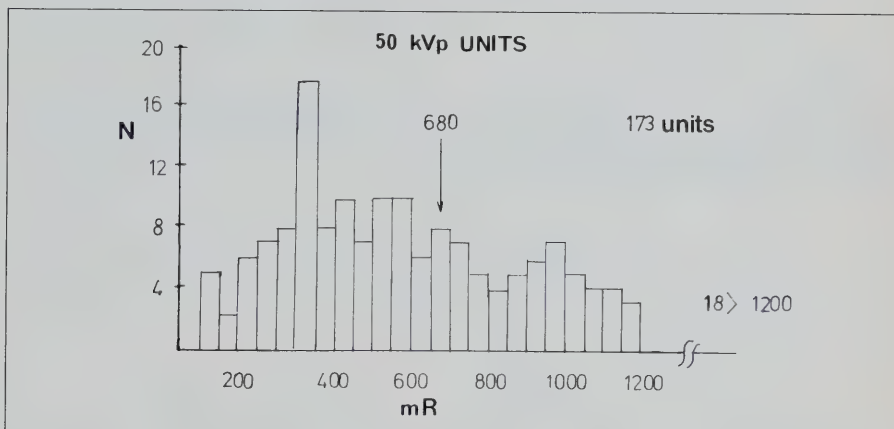


FIGURE 6

Distribution of 70 kVp dental x-ray machines by radiation per exposure British Columbia 1981-83

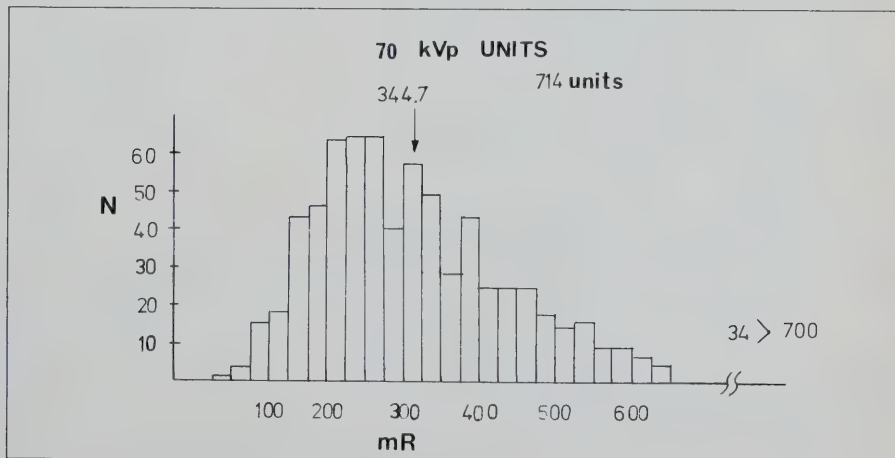


FIGURE 7

Distribution of 90 kVp dental x-ray machines by radiation per exposure British Columbia 1981-83

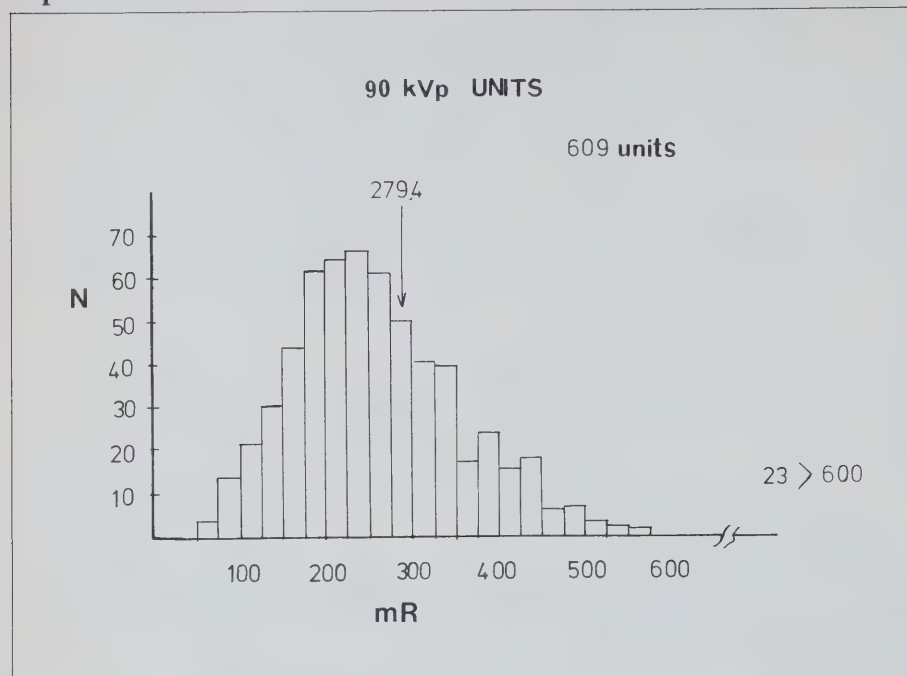
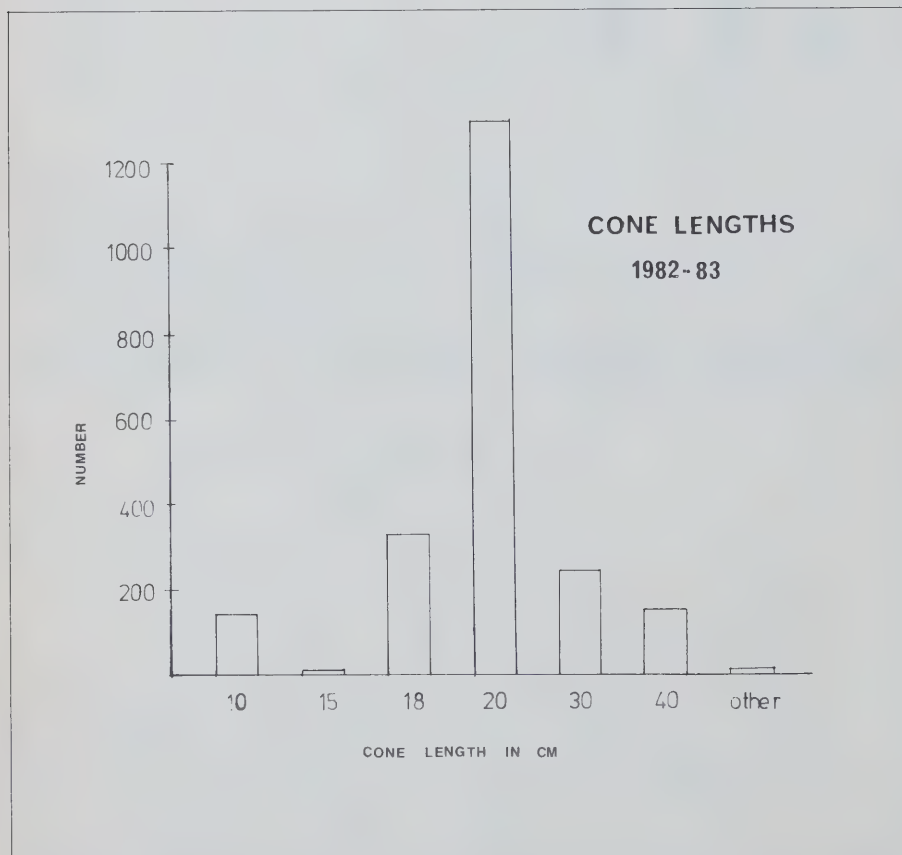


FIGURE 8

Distribution of variations in cone length of dental x-ray machines British Columbia TLD survey 1981-83



date of the visit. This communication was most useful in providing an introduction to the offices and allowed for the survey to be carried out in a relatively rapid manner. Waiting time was reduced, as all dental office staff were informed of the purpose and method of the survey. This method was subsequently put to good use throughout the whole province.

Much was learned from the pilot survey. For example, because of inconsistent recording, such as cone length, serial numbers, etc., it became evident that a more comprehensive orientation training period would be necessary. Subsequently, this was carried out in all regions. A three-hour training period was provided by the Radiation Protection Service. Modifications in the TLD packages were also made.

During the following two and one half years, the entire province was surveyed. The results of the surveys were mailed to the dentists by the local Regional Dental Consultants or Municipal Dental Director, after processing by the Radiation Protection Service. All offices, even in the remote areas, were visited. In a very small number of cases where dentists are semi-retired or are frequently absent, it has not been possible to include these at the time of writing. These will be visited in due course.

RESULTS AND CONCLUSIONS

The TLD survey has given this Ministry information, not only on the dental exposures, but also on the types and number of dental units operating in the province. The average exposure of 381 mR shown in **Figure 4** is not significantly different from the 1978 average of 384 mR. **Figure 5** illustrates the exposures for all 50 kVp units. Ninety-two of the 173 units (53 per cent) exceeded the DRH upper limit of the exposure range.

Similar results are shown in **Figures 6** and **7**, for 70 and 90 kVp, respectively. Thirty-four per cent (246) of the 714, 70 kVp units exceed the DRH exposure guidelines. Sixty-seven per cent, or 405 of the 609, 90 kVp units exceed the DRH exposure guidelines. We believe, however, that a significant number of these units are not being operated at 90 kVp, but rather at a lower kVp setting where a higher entrance dose is acceptable. Probably only 35-40 per cent of the 90 kVp units exceed the DRH exposure guidelines. Taking this into account, approximately 40 per cent of all dental units were operated at above DRH guidelines. These results are consistent with those of the DRH program.⁶ It was noted that a significant number of units in all kVp ranges operated at greater than twice the average entrance dose for that kVp.

Figure 8 illustrates the various cone lengths used in the province. It should be

noted that 169 units had 4 inch (10 cm) cones. This length of cone no longer meets the Radiation Emitting Devices Act Regulations. Some 29 per cent of the units surveyed in the TLD program had cone lengths of less than 18 cm, compared to 16 per cent found in the limited 1976 study. This does not indicate that cone lengths are getting shorter but that this TLD survey was successful in including the dental facilities that required surveys.

The performance of the units according to the brand of manufacturer is summarized in Table II. G.E. machines appear to be the most popular, followed closely by Ritter. The percentage in excess of DRH recommendations for the higher kVp machines (Ritter, G.E. and SS White) is higher than actual operating practice due to incorrect reporting of operating kVp. Follow-up inspections have revealed that in the majority of cases, excessive exposure is due not to machine design but to inadequate processing in the darkroom.

The average exposure at each kVp has been plotted in Figure 9. The lowest kVp was 45; 45 units were operating at this potential. All of these units were manufactured before the 1972 R.E.D. regulations. As indicated above, it was noted that x-ray units listed as 90 kVp were generally of variable voltage design and many were being operated at a lower kVp than indicated. As a result, the average exposure for those units actually operating at 90 kVp would be less.

FOLLOW-UP INSPECTIONS

A Radiation Protection Officer performed an on-site inspection if: 1) the dental unit

exceeded 500 mR/bitewing; or 2) the unit had been noted for follow-up by one of the TLD surveyors.

Additional units were surveyed if their exposure was inconsistent with good practice (e.g., the entrance exposure was too low/high for the operating kVp). By the beginning of May 1984, some 453 units had received a follow-up inspection. The total number of units potentially exceeding the DRH recommendations was 1169. In most cases, it was found that several causes could be attributed to the high exposure value on the TLD. The principal faults are summarized in Table III.

It should be noted that the chief cause of high exposures is failure in the darkroom. Nearly 60 per cent of the follow-up inspections showed a problem with darkroom chemistry, including insufficient development time, exhausted solutions, improper temperature control and failure to follow the manufacturer's instructions. The second largest source of problems was the obsolescence of equipment, which was primarily due to low kVp; i.e., they could not meet the R.E.D. Act for kVp (less than 50 kVp), or there was a problem with timing (mainly mechanical timers on low output units). It should also be noted that only seven units of the total number inspected had a problem with inadequate filtration. This is in contrast to 70 per cent, which was measured in the small survey in 1965.

CONCLUSIONS

Together, the dentists of British Columbia and the Radiation Protection Service, Ministry of Health, have made great strides in minimizing the exposure of dental

patients to unnecessary radiation. Continued aggressive action on the part of dentists to secure periodic monitoring of their equipment, and to ensure that adequate darkroom techniques are being followed in association with using modern radiographic equipment, is necessary for maximum patient protection.

ACKNOWLEDGEMENTS

The data and evaluations presented in this document have been developed over a number of years and many individuals have participated in various aspects of the TLD program. This includes summer students from S.F.U. and U.B.C., dentists, dental hygienists and dental assistants from Dental Health Services, and Radiation Protection Officers from the Radiation Protection Services. We also appreciate the encouragement and assistance received from the College of Dental Surgeons of British Columbia.

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Dr. Greene is director, Radiation Protection Services, Ministry of Health, Province of British Columbia.

Dr. McConchie was regional dental consultant for the Fraser Valley, Ministry of Health, Province of British Columbia, at the time of this survey; he has since retired.

Dr. Gray is director of Dental Health Services, Ministry of Health, Province of British Columbia.

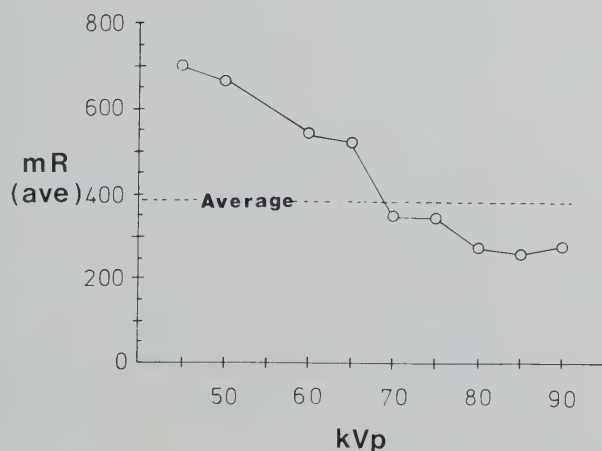
Reprint requests to Dr. A.S. Gray, Ministry of Health, Province of British Columbia, Preventive Services, 7th Floor, 1515 Blanshard St., Victoria, B.C. V8W 3C8.

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FIGURE 9

TLD exposure as a function of kVp dental x-ray machines British Columbia 1981-83



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THE DENTIST'S ROLE IN DETECTING LESIONS

WHICH MIMIC COMMON DENTAL CONDITIONS

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ABSTRACT

The general dental practitioner has the unique opportunity, ability, and obligation to detect lesions which may closely mimic common dental conditions. His crucial role is analyzed and illustrated with four case reports.

SOMMAIRE

Le praticien dentaire général est le seul à avoir l'occasion de déceler les lésions ressemblant à s'y méprendre à des états dentaires communs, à posséder la compétence pour ce faire et à y être tenu. Le rôle qu'il joue est crucial. Ce rôle est étudié et illustré à l'aide de quatre cas.

By far the greatest proportion of oral lesions consist of caries, periodontal disease, malocclusion and their sequelae (CPM&S). Virtually every human being, commencing from the primary dentition stage, is afflicted with CPM&S in some form, and their prevalence influences dental school curricula as well as the scope of dental practice. Many dental health care professionals have a high degree of expertise in the diagnosis and treatment of this group of diseases.

Like any other part of the body, however,

the oral cavity is subject to the entire range of disease processes: genetic, developmental, metabolic, infectious, autoimmune and neoplastic (grouped for convenience under "non-CPM&S"). Despite the vastly lower prevalence of non-CPM&S oral diseases, by virtue of their potentially profound effect on patient morbidity and mortality, the dentist has a professional obligation in their detection. The extent to which he participates in the definitive diagnosis and management of the condition is of lesser importance than early detection.

How can the general dental practitioner hope to maintain expertise about a large group of rare diseases? In most cases, he cannot; he is only expert about diseases which he deals with on a regular basis.

The purpose of this paper is to show how the general practitioner's knowledge of CPM&S can be used in detecting non-CPM&S diseases — specifically those mimicking CPM&S.

Dentists are thoroughly familiar with both the range and the usual presenting signs and symptoms of CPM&S. Just as they have been taught in undergraduate oral diagnosis to look for the normal in order to uncover the abnormal, so they must systematically verify that a lesion superficially presenting as CPM&S has the important features of CPM&S (Table I). If the

TABLE I

Comparison of the relative incidence of certain symptoms and signs as an aid for clinically distinguishing CPM&S from non-CPM&S

Symptoms/signs	Hypothetical incidence CPM&S eg. pulpal abscess	nonCPM&S eg. carcinoma mimicking pulpal abscess
heat sensitivity	.9	.1
local etiology eg. gross caries	.9	.2
past history of pain	.8	.3
negative vitality test	.8	.1
percussion sensitivity	.7	.2
periapical radiolucency/opacity	.6	.8
presence of pain	.5	.4
tooth mobility	.4	.4
focal swelling	.2	.2
systemic symptoms	.1	.2
paresthesia	.1	.9

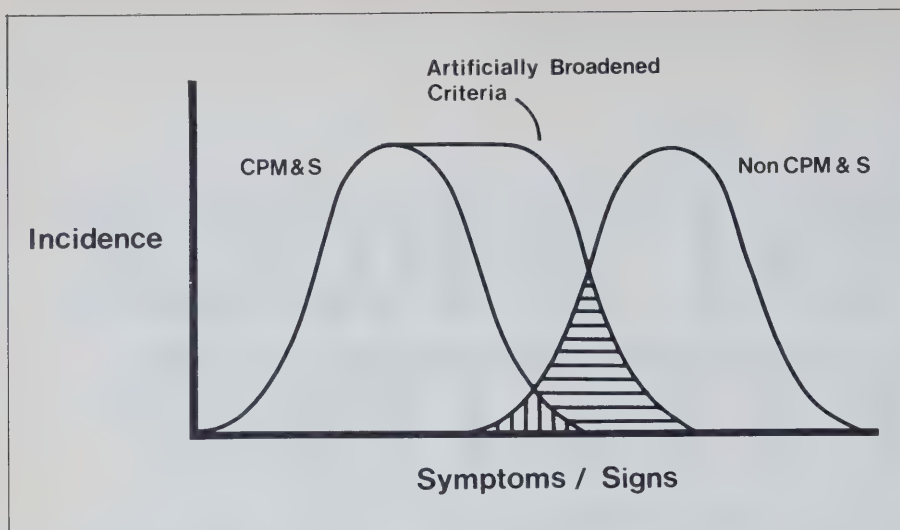


Fig. 1. The overlap in the symptoms and signs of CPM&S and non-CPM&S (vertical hatch lines) and the increased potential for clinical misdiagnosis due to artificially broadened criteria for CPM&S (horizontal hatch lines).



Fig. 2. Clinical photograph of Case 1, showing generalized heavy calculus, plaque and stain deposits and gingival recession.



Fig. 3. Radiograph of Case 1 showing severe alveolar bone loss, especially around 4.3, giving rise to a "floating tooth" appearance.

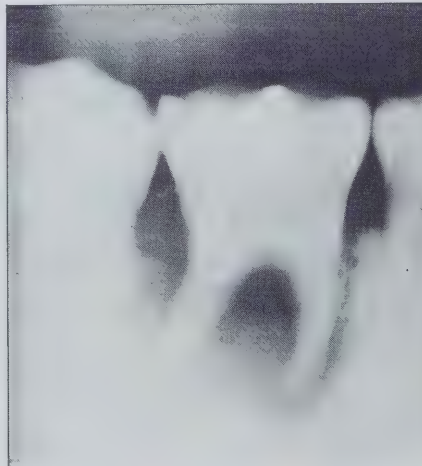


Fig. 4. Radiograph of Case 2 showing severe alveolar bone loss restricted to 4.6 but otherwise similar to Fig. 3. (Courtesy of Dr. Clyde Whitman, London, Ontario.)

lesion is missing even a single feature normally present in most CPM&S lesions of the subtype that is suspected, a non-CPM&S lesion must be suspected and ruled out.

The ever-present danger in a busy dental practice is that an inadequate history and examination may be performed when a patient presents with an apparent CPM&S emergency. A further danger is that after years of diagnosing and successfully treating CPM&S, the dentist's criteria for its clinical diagnosis may gradually become artificially broadened to increasingly overlap with non-CPM&S (pseudo-CPM&S) (Fig. 1). The following cases are presented to illustrate these concepts:

Case 1

A 37-year old male presented for general dental care to one of the authors (J.L.). The patient's medical history was non-contributory. Clinical and radiographic examination revealed generalized, moderate to severe periodontitis (Fig. 2). Bone loss was especially severe in the 4.3 region, resulting in a "floating tooth" appearance radiographically (Fig. 3). The clinical diagnosis was chronic periodontitis, rule out histiocytosis-X, and carcinoma.

During the appointment for multiple extractions, 4.3 was extracted and the soft tissue contents of its socket curetted and submitted for pathologic examination. The pathologic diagnosis was chronic periodontitis and the extraction site healed uneventfully.

Case 2

A 75-year-old male experienced discomfort in the right posterior mandible. Some swelling and redness were observed around the 4.6. Radiographs revealed extensive "periodontal" bone loss around this tooth (Fig. 4) but no evidence of periodontal disease in other areas. His medical history was non-contributory. The tooth was extracted and the associated soft tissue submitted for pathologic examination.

The pathologic diagnosis was squamous cell carcinoma. A wider local excision of the area was performed. Regular clinical and radiographic follow-up shows no evidence of recurrence three years postoperatively.

Case 3

A 24-year-old male presented for emergency dental care to one of the authors (J.L.). He had pain arising from a mobile, extensively restored 3.7. There was no clinical nor radiographic evidence of periodontal disease. The tooth was not responsive to electrical pulp testing. Radiographs revealed a large periapical radiolucency (Fig. 5). The patient's medical history was non-contributory.

The clinical diagnosis was acute pulpal

abscess. Conservative endodontic therapy resulted in clinical and radiographic resolution of the signs and symptoms (Fig. 6).

Case 4

A 48-year-old male presented with a relatively asymptomatic swelling associated with an extensively restored 1.4. The radiograph of the area is presented in Fig. 7. The patient's medical history was non-contributory.

The clinical diagnosis was granulation tissue. The area was curetted and the tissue was submitted for pathologic diagnosis.

The pathologic diagnosis was lymphocytic lymphoma. Both 1.4 and 1.5 were subsequently extracted and the area thoroughly curetted. Clinical work-up by an oncologist showed no evidence of neoplasia elsewhere. Quarterly follow-up examinations of the patient indicate that he remains free of both local and systemic disease 15 months postoperatively.

DISCUSSION

These and other cases serve to illustrate the capacity of systematically significant lesions to closely mimic reactive (inflammatory) odontogenic lesions.¹⁻⁶

A thorough history, physical examination and special tests such as radiographs, vitality tests and biopsy will yield sufficient data, when viewed as a composite picture of the disease, for an accurate diagnosis to be made.

When there are inadequate data or when the results of individual tests are relied upon in isolation, the potential for misdiagnosis is magnified. Some examples of potentially confusing data are:

1. symptoms of pain – CPM&S and non-CPM&S are often painless, while non-CPM&S can induce a secondary pulpitis;
2. signs of infection – non-CPM&S lesions frequently become secondarily infected;
3. periodontal pocket measurement – due to the high prevalence of periodontitis, clinical documentation of periodontitis does not necessarily rule out the presence of non-CPM&S;
4. radiographic evidence of alveolar bone loss – the radiographic features of advanced CPM&S and early non-CPM&S can overlap to a marked degree;
5. electric pulp testing – partially necrotic molars can give vital responses; a tooth may become devitalized by a non-CPM&S lesion; CPM&S may be concurrent with non-CPM&S;
6. histopathologic examination of biopsy material – even this most reliable of diagnostic tools must be interpreted in context of the other patient data.

In the cases presented, treatment was based on a clinical diagnosis of CPM&S since statistically that was most probable. The



Fig. 5. Radiograph of Case 3 showing a large periapical radiolucency associated with a heavily restored 3.7.



Fig. 6. Radiograph of Case 3, taken 6 months after completion of conservative endodontic therapy, illustrates good bone regeneration.

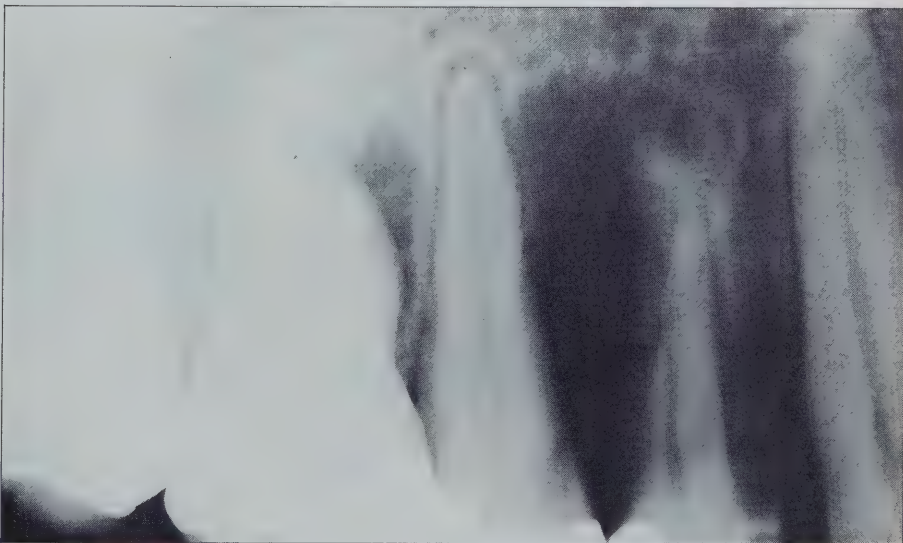


Fig. 7. Radiograph of Case 4 shows a large radiolucency associated with a heavily restored 1.4 (Courtesy of Dr. Lee T. Prentice, London, Ontario.)

clinicians were, however, cognisant that the data were at the extreme end of the spectrum of signs and symptoms – the end which overlaps with non-CPM&S (Fig. 1). Lack of this appreciation equals artificial broadening of CPM&S criteria with increased likelihood of potentially serious misdiagnosis.

Since they could not rule out non-CPM&S, pathologic examination and clinical follow-up were employed as important diagnostic tools to assure optimum and, in two cases, life-saving treatment.

SUMMARY

A thorough knowledge of his specialized field combined with a methodical approach to diagnosis should enable the dental practitioner to clinically assess the probability of a lesion belonging to the CPM&S group of diseases. When this probability is high,

a therapeutic trial is appropriate. When the probability is lower, prompt investigation to rule out non-CPM&S disease is in order. The dental profession has the unique opportunity, competence and obligation to differentiate between CPM&S and those diseases which mimic this group of diseases.

The authors wish to thank Drs. Clyde Whitman and Lee T. Prentice for contributing Cases 2 and 4, respectively, and Angela Faulkner for her expert secretarial assistance.

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Reprint requests to Dr. Lovas.

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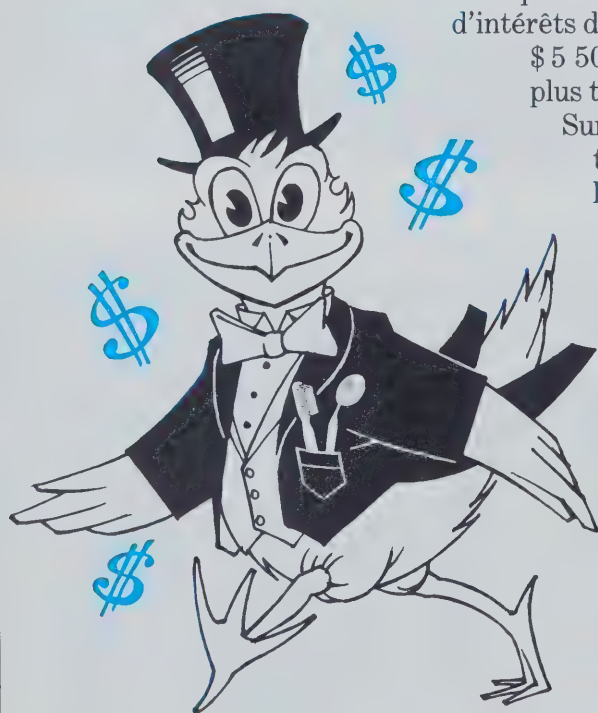
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DECLINE OF DENTAL CARIES

WHAT OCCURRED AND WILL IT CONTINUE?*

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*Paper presented at the Canadian Dental Association National Conference on Dental Caries Decline: Implications for Private Practice and Public Programs, Montreal, February 1, 1985.

Development of this paper supported, in part, by The Robert Wood Johnson Foundation

INTRODUCTION

The caries decline in children of many developed countries is widely publicized in the dental literature. Caries prevalence, patterns and trends are generally similar in most of these developed countries. Data from various provincial ministries of health, indicate declining caries trends in Canada similar to the United States. Hence, data from the United States is presented to demonstrate the current status of caries and the expected trends. Factors that may influence these trends are discussed. Data are primarily from child and young adult populations because less representative information is available on older adults. Many of the population groups from which caries data are obtained are nonrepresentative, but generally large sample sizes and consistent findings, we think, argue for their credibility. An introductory historical perspective is provided, followed by a presentation of data and discussion. A concluding summary asserts that caries has declined in children and adults, that this decline will continue, and even accelerate as relatively caries free children age and sustain lower caries levels through adulthood.

SOMMAIRE

Les publications dentaires font grandement état de la réduction des caries chez les enfants des pays industrialisés. En général, la prévalence des caries, leur évolution et les tendances à ce sujet se ressemblent dans la plupart de ces pays. Au Canada, les données provenant des divers ministères de la santé provinciaux montrent que la réduction des caries suit celle qu'on observe aux États-Unis. C'est pourquoi on utilise les données américaines pour démontrer la situation actuelle touchant les caries et les tendances prévues. De plus, on examine les facteurs pouvant agir sur ces tendances. Les données utilisées ont été recueillies surtout auprès de populations d'enfants et de jeunes adultes. En effet, les renseignements que l'on possède sur les adultes plus âgés sont moins représentatifs. De nombreux groupes auprès desquels on a recueilli des données touchant la carie ne sont pas représentatifs également. Cependant, nous croyons que la fréquence des découvertes et l'importance de l'échantillonnage indiquent qu'on peut y ajouter foi. L'introduction offre une perspective historique suivie d'une présentation des données et d'un examen. En conclusion, on soutient que les caries ont diminué chez les enfants et les adultes, que cette baisse continuera et même s'accroîtra, étant donné que les enfants n'ayant relativement aucune carie grandissent et en ont très peu durant leur vie adulte.

HISTORICAL PERSPECTIVE

Historically, dental caries has been almost universally prevalent, and, although geographical variations occurred, the dental health of Americans has been a serious problem.¹ In 1863-64, loss of teeth was the fourth largest cause for rejection of young men for military draft into the Union Army during the Civil War.² In 1918, military draftees were rejected for defective and deficient teeth at the rate of over 10 per cent of men from Vermont.³

One of the earliest studies of the dental condition in a large heterogeneous adult population was conducted in the 1920s by the Metropolitan Life Insurance Company.⁴ Dental examinations of more than 12,000 people revealed that those aged 20-24 had more than half of their teeth affected by caries, and older age groups had proportionately higher disease. A U.S. Public Health Service study of thousands of 6-14 year-old children in 26 states across the country in 1933-34 revealed high caries levels particularly in northeastern U.S.⁵

Prior to World War II, Klein examined 947 men aged 21-35 in Maryland and West Virginia to evaluate the effect of the U.S. War Department Mobilization Regulation issued in 1940.¹ The regulation required that to be acceptable for military service a man must have a minimum of both three serviceable natural anterior and posterior teeth in

TABLE 1**Mean DMFS for U.S. Children Aged 5-17**

AGE	HANES 1971-74 MEAN DMFS	NDCPS 1979-80 MEAN DMFS
5	0.15	0.11
6	0.41	0.20
7	0.69	0.58
8	1.86	1.25
9	3.59	1.90
10	4.14	2.60
11	4.58	3.00
12	6.36	4.18
13	8.67	5.41
14	9.60	6.53
15	11.67	8.07
16	15.12	9.58
17	16.90	11.04
ALL AGES	7.06	4.77

Source: Brunelle and Carlos, National Dental Caries Prevalence Survey, 1979-80.²⁷

TABLE 2**Mean DMFS by Surface Type, Age 5-17**

	HANES 1971-74	NDCPS 1979-80
Occlusal	3.5	2.6
Proximal	1.7	.8
Buccal-Lingual	1.9	1.4
All Surfaces	7.1	4.8

Source: Brunelle and Carlos, National Dental Caries Prevalence Survey, 1979-80.²⁷

TABLE 3**Percent of Caries Experience by Tooth Surface by Time Periods for Children Aged 5-17**

SURFACE	1935-40*	HANES 1971-74**	NPDDP 1977-78***	NDCPS 1979-80****
OCCUSAL	50	49	52	54
BUCCAL-LINGUAL	21	27	32	30
MESIAL-DISTAL	29	24	16	16

* Marshall-Day and Sedwick,²⁴ and Knutson, Klein and Palmer.⁸¹
 ** Health and Nutrition Examination Survey, 1971-74.¹⁸
 *** National Preventive Dentistry Demonstration Program, 1977-78.²⁰
 **** National Dental Caries Prevalence Survey, 1979-80.²⁷

opposition in each arch. The rejection rate was 38 per cent in the 28-35 age range because of high numbers of extracted teeth. Although these standards were not high, dental defects accounted for over 250,000 of 1,600,000 rejections for physical and mental reasons. In a 25 year period following World War II, studies conducted on both civilian⁶⁻⁹ and military populations¹⁰⁻¹⁵ revealed relatively high caries prevalence.

In addition to the high caries prevalence historically, the relationship of some variables to caries experience changed over time. An interesting alteration occurred in the relation of socioeconomic status (SES) to DMFT scores. Both National Health Examination Surveys (NHES) of 1963-65¹⁶ and 1966-70¹⁷ of U.S. children and youths reported that SES was directly related to DMFT, i.e. higher levels of SES were associated with higher caries prevalence. More recent studies¹⁸⁻²² report a reverse in this trend and it is now acknowledged that in the U.S., SES is inversely related to caries experience.

The relationship of race to caries prevalence is also noteworthy. Historically, black populations have demonstrated both lower SES and caries prevalence than white populations.²³⁻²⁵ Studies of large numbers of children in the early 1930s,²⁴ in the late 1930s²⁵ and in the early fluoridation studies during the 1950s²³ all reported caries prevalence in black children to be more than 25 per cent lower than in white children. More recent studies, including the NHES of 1963-65¹⁶, the North Carolina studies of 1960-63 and 1976,^{6,26} and the 1979-80 National Dental Caries Prevalence Survey (NDCPS)²⁷ also found lower caries prevalence in black than in white children, however the differences were less than formerly.

However, reports of greater caries experience among black than white children

began to emerge in the late 1960s and 1970s. A 1967 Portland, Oregon study²⁸ concluded that black children in first and fifth grades had higher DMFS scores than their white classmates. Comparing data from the two national studies, the NHES of 1963-65¹⁶ and the Health and Nutrition Examination Survey (HANES) of 1971-74¹⁸ for children aged 6-11, reveals that white children had an insignificant gain in caries prevalence but that black children had a 50 per cent increase in DMFT scores from the 1960s to the 1970s. The National Preventive Dentistry Demonstration Program (NPDDP) of 1977-82,²⁰ conducted on 25,000 children at 10 geographically dispersed sites, found higher DMFS scores among black than among white children.

Dental caries has always shown an age and sex association. Within the general population, the 15-19 year age group has the highest number of new lesions develop per year.²⁴ Typically, females experienced higher DMFT scores than males.^{4,5,9,29} In summary, through most of this history up to the late 1960s, Americans of all ages experienced high caries prevalence.

CARIES DECLINE IN CHILDREN

Currently, a most exciting development is the now well publicized decline in caries among children in most of the world's developed countries.^{26,27,30-53} The 1979-80²⁷ National Dental Caries Prevalence Survey (NDCPS) of U.S. children aged 5-17 revealed a DMFS decline from 7.1 to 4.8, a 32 per cent reduction in DMFS score from 1971-74 levels¹⁸ (Table 1). Although published reports of caries decline have been relatively recent, Indiana,⁵³ Massachusetts,^{32,35} and Tennessee³⁶ have shown the decline to extend over a 25-30 year period. Indiana 6-14 year-old children experienced a remarkable 77 per cent fall in DMFT between 1950-55 and 1981-82 (Figure 1). During the most recent decade, caries prevalence declined 49 per cent to only 1.1 DMFT per child in Indiana.

Not only has there been a decrease in the average amount of decay that a child experiences, but also, the pattern of disease in the child population has altered significantly. Comparing the National Health Examination Surveys (NHES) conducted between 1963-70^{16,17} and the NDCPS of 1979-80,²⁷ (Figure 2) a higher percentage of children was caries free or had low DMFT scores relative to children of comparable age in the 1960s. In the 1979-80 NDCPS, 37 per cent of the 5-17 year-olds were caries free in their permanent dentition, and another 40 per cent had low DMF scores of 1-4 teeth (Figure 3).

Whereas all tooth surfaces averaged 32 per cent less decay, the proximal sur-

faces demonstrated the greatest percent reduction in disease (Table 2). The mean decrease from 1.7 to 0.8 DMFS was a 53 per cent decline for these surfaces. Table 3 illustrates that the proportional contribution of the affected proximal surface scores to total DMFS was only 16 per cent in the NDCPS of 1979-80 as well as the National Preventive Dentistry Demonstration Program (NPDDP) in 1977-78²⁰ compared to 29 per cent observed during the 1930s.²⁴

With the reduction in decay and a proportional shift to the fissured surface lesion as the principal form of decay, caries experience in the permanent teeth of children is confined increasingly to the molar teeth (Table 4). At the end of the NPDDP in 1982, analyses of control group children by their caries and restorative patterns illustrate the relatively low level and simple pattern of dental caries (Table 5). A high percentage of children had either no history of decayed surfaces or demonstrated a simple pattern of fissured surface decay that had been filled by the final examination. Nearly two-thirds of the NF grade 5 children had no caries history (29 per cent) or had their restorative care completed and limited to fissured surfaces (35 per cent). Only 14 per cent of the fifth grade children had any treatment need or restorative care combination that included anything other than occlusal or buccolingual surfaces. As expected, at F sites there were even fewer children with restorative needs other than simple fillings on fissured surfaces.

It is particularly gratifying to find that extraction of permanent teeth among children has declined markedly. The M component as a proportion of the DMFS score fell from 18.1 to 7.1 per cent between the 1971-74 HANES study and the 1979-80 NDCPS survey (Table 6). In addition, the need for treatment has decreased, evidenced by the decline in the relative proportion of decayed teeth from 29.9 to 16.8 per cent, with a concomitant increase in the percentage of filled surfaces.

The primary dentition has also benefitted from the decline in caries experience, particularly in individual states where deft scores were initially higher (Table 7). Primary deft scores dropped from approximately five to about three teeth in Massachusetts,³⁵ North Carolina²⁶ and Tennessee³⁶ children during periods varying from 16 to 30 years. An interesting finding noted in the Massachusetts children is that deft scores declined steadily after age 5 in 1951, but increased between ages 5-9 in 1979-81 (Figure 4). The authors' explanation was that in the 1950s caries attack levels were high and primary teeth were being extracted heavily. In contrast, by

TABLE 4

Percentage of Each Tooth Type Decayed at Nonfluoridated Sites, By Age, NPDDP, 1978²⁰

Tooth	6	7	8	9	10	11	12	13
U Central				0.8	2.3	4.9	7.0	9.7
L Central					0.6	1.3	1.7	1.9
U Lateral			0.5	1.3	3.0	6.5	9.3	13.4
L Lateral						0.5	1.3	1.4
U Cuspid						0.5	0.9	1.7
L Cuspid								
U 1st Bicuspid					1.9	3.6	5.8	10.6
L 1st Bicuspid					0.8	2.8	4.3	6.6
U 2nd Bicuspid				0.6	1.2	3.3	5.8	10.4
L 2nd Bicuspid					1.3	4.5	7.5	12.4
U 1st Molar	8.3	22.1	40.1	46.9	56.7	65.0	69.3	71.1
L 1st Molar	12.2	27.6	44.6	49.5	58.7	65.3	72.3	76.4
U 2nd Molar					1.2	6.6	17.8	32.0
L 2nd Molar					2.5	12.0	27.3	44.2

Percentage of Each Tooth Type Decayed at Fluoridated Sites, By Age

Tooth	6	7	8	9	10	11	12	13
U Central				0.5	0.9	2.0	2.2	4.1
L Central						0.8	1.1	1.1
U Lateral			0.5	1.1	1.5	4.1	5.2	6.1
L Lateral								0.5
U Cuspid								
L Cuspid								
U 1st Bicuspid					0.8	2.2	3.1	5.2
L 1st Bicuspid						1.3	1.6	2.6
U 2nd Bicuspid					0.6	1.6	3.5	5.6
L 2nd Bicuspid					0.6	2.4	3.7	6.2
U 1st Molar	6.7	18.9	30.5	38.8	47.8	53.6	54.8	58.2
L 1st Molar	10.9	24.8	38.2	43.7	52.5	59.6	62.2	65.5
U 2nd Molar						4.4	10.7	17.5
L 2nd Molar					1.7	8.7	17.6	29.9

1979-81, caries attack levels were low and many fewer primary teeth were extracted but were retained through restoration.

CARIES DECLINE IN ADULTS

The current caries prevalence among adults remains uncertain. The most recent U.S. national data available for determining either trends or current status in dental caries are the NHES of 1960-62⁹ and the HANES of 1971-74.¹⁸ As noted in recent reports,^{54,55} DMFT scores declined in young adults, aged 18-34, between 1960-

62 and 1971-74 (Table 8). However, the older age groups were unchanged or had slightly higher caries levels. For example, among U.S. adults aged 18-24, DMFT scores decreased from 14.0 to 10.9, but for 35-64 year olds DMFT scores remained at about 20-25 for comparable ages. Adults aged 45-64 did experience slightly fewer extracted teeth and more filled teeth in the later study, suggesting an increased tendency toward restoration rather than the extraction of diseased teeth.

In the absence of recent national data,

TABLE 5

Percent of Children by Decayed or Filled Surface Patterns, Control Groups, NPDDP, 1982

GRADE	N	NONFLUORIDATED SITES OCCLUSAL, BUCCOLINGUAL ONLY				Combination of Proximal or Anterior Decayed or Filled Surfaces
		No Decayed or Filled Surfaces	All Filled Surfaces	All Decayed Surfaces	Decayed & Filled Surfaces	
5	855	29.2	35.0	13.2	8.4	14.2
6	800	23.6	36.6	11.9	10.1	17.7
9	612	10.3	26.3	7.5	13.1	42.8
FLUORIDATED SITES						
5	524	31.1	40.5	9.8	9.8	9.0
6	569	22.5	40.8	10.9	13.2	12.7
9	418	15.3	36.3	6.7	13.2	28.5

TABLE 6

Percent Components of Total DMFS, Age 5-17

	%D/DMFS	%F/DMFS	%M/DMFS
HANES 1971-74	29.9	52.0	18.1
NDCPS 1979-80	16.8	76.1	7.1

Source: Brunelle and Carlos, National Dental Caries Prevalence Survey, 1979-80²⁷

TABLE 7

Caries Prevalence in Primary Teeth of U.S. Children

TIME	POPULATION	AGE	deft
1951	MASSACHUSETTS	5-9	5.0
1981	MASSACHUSETTS	5-9	2.0
1954	TENNESSEE	6-9	5.1
1979	TENNESSEE	6-9	3.1
1960	N. CAROLINA	5-9	4.7
1976	N. CAROLINA	5-9	3.4
1963-65	U.S.	6-11	3.0
1971-74	U.S.	6-11	2.7
1979-80	U.S.	5-9	2.6

TABLE 8

Caries Prevalence in U.S. Adults and DMFT Components By Age

TIME	AGE	DMFT	DT	MT	FT	FT/DFT%
1960-62*	18-24	14.0	2.1	5.1	6.8	76
1971-74**		10.9	2.0	1.9	6.9	77
1960-62	25-34	17.3	1.6	8.0	7.7	83
1971-74		15.9	1.7	5.4	8.8	84
1960-62	35-44	19.1	1.2	10.5	7.4	86
1971-74		20.4	1.1	11.2	8.2	88
1960-62	45-54	21.5	1.0	15.4	5.1	84
1971-74		21.8	0.8	14.0 < 16	7.0	90
1960-62	55-64	25.1	0.6	21.0	3.5	85
1971-74		24.7	0.6	19.0 ←	5.1	89

* National Health Examination Survey, 1960-62⁹
 ** Health and Nutrition Examination Survey, 1971-74¹⁸

inspection of changes in the caries experience of certain population subgroups may be indicative of the situation now prevailing among U.S. adults. The data in **Tables 9** and **10** may serve this purpose; but should be interpreted with caution. In the first place, the displayed DMFT means are not adjusted to control for bias among groups. Second, the DMFT has well known defects as a caries index when applied to persons over 35 years of age. Nevertheless, examined in the aggregate, the data suggest that mean DMFT has declined in the 18-34 year age group. This tendency is exhibited most clearly among the youngest cohort in **Table 9**. If this tentative conclusion is confirmed by subsequent studies, then a cohort effect will contribute to lower DMFT scores in the older age groups in future years.

Additional data are available demonstrating the reduced caries prevalence among the young adult population in the U.S.^{7,12-15,18,22,26,27,32,36,56-59} **Table 10** shows that prior to 1970, studies on young adults found relatively consistent mean caries scores averaging 14.6 DMFT. After 1970, and particularly since 1979, DMFT scores for these varied groups of young adults have fallen appreciably. This chronological decline is illustrated in **Figure 5**.

As reported earlier for children, much of the decline in caries prevalence for young adults is attributable to reduced extractions. The missing tooth component of DMFT (**Table 10**) for the various studies listed illustrates that decline. From 1977 on, all of the reports on young adults, except Iowa where third molars were included, showed that an average of only one tooth or less had been extracted because of caries. There has also been a significant decline in numbers of decayed teeth. Naval recruits had an average of over six decayed teeth in the mid 1970s, but only about three decayed teeth in the early 1980s.

DISCUSSION

Clearly, dental caries has fallen considerably among children. More children are caries free and the majority of those who have some decay experience a simpler pattern of disease than children suffered in the past. Often, only molar teeth are involved and extractions are much less frequent. Currently, U.S. youths have few missing permanent teeth. The DMFS score of 4.8 (**Table 1**) for children 5-17 and the low 7.1 per cent of that total represented by missing surfaces (**Table 6**) translates to seven missing teeth for every 100 children aged 5-17, compared to 26 missing teeth for every 100 individuals in 1971-74. This remarkable 73 per cent decline in extracted permanent teeth in children occurred in just eight years.

More treatment is being obtained by U.S. children and thus, the average child has little untreated disease. The more frequent removal of these reservoirs of active decay should contribute to reduced future decay. It has been found that the degree of *Streptococcus mutans* infection is related to caries prevalence and the dental restoration history of individuals.⁶⁰

The early decline in caries prevalence among children in states, such as Indiana (Figure 1) and Tennessee (Table 7), is considered to be related to fluoridation. But caries declines are now acknowledged in areas with little fluoridation, for example Ohio⁵¹ and Massachusetts³⁵ (Table 7).

Nevertheless, at the same time that caries is generally falling and an increased percentage of Americans have little or no disease, a small proportion of the population has a large proportion of the total disease occurrence. In the NPDDP^{20,21} it was found that over half of the total caries experience occurred in only 20 per cent of the study participants. A study of naval personnel in 1979-82⁵⁹ revealed that the five per cent of individuals with the worst caries experience accounted for 38 per cent of the total of newly carious lesions and 45 per cent of replacement restorations required each year.

It should be acknowledged that caries is increasing dramatically in many developing countries of the world, particularly those in which sugar consumption has increased markedly.^{52,61} It is sobering to be reminded that 80 per cent of the world's children are found in these developing countries and that their increases in caries prevalence are more dramatic than the declines observed in developed countries. In addition, several industrialized countries, including Austria, Bulgaria, German Democratic Republic, Hungary, Italy, Poland, Russia and Spain, have not experienced a decline in caries.⁶¹

Conclusions about adult caries trends, when based on epidemiologic data gathered at different times under varying conditions, and particularly on diverse population groups, are highly tenuous. Caries experience for military population groups may not be representative of the U.S. population for numerous reasons. Studies conducted in states or regions of the country will produce DMFT scores influenced by the characteristics of that area.

Certainly, the degree of fluoridation in an area greatly affects caries prevalence. Thus, Tennessee with a high proportion of its population drinking fluoridated water would be expected to have lower DMFT scores for its youth in 1979 than would Boston in 1979 because Boston was so recently fluoridated, other factors being equal. Even though the various U.S. caries studies cited

TABLE 9

DMFT Scores in U.S. Adult Population Groups, 1960-1980

TIME	POPULATION	AGE				
		18-24	25-34	35-44	45-54	55-64
1960-62	US Adults	14.0	17.3	19.1	21.4	25.1
1960-63	NC Adults*	14.2	18.0	17.6	21.5	26.6
1971-74	US Adults	10.9	15.9	20.4	21.8	24.7
1976	NC Adults*	11.0	16.0	21.4	22.4	24.5
1980	Iowa Adults	10.7	12.5	16.1	19.4	20.2

*White Males

TABLE 10

Dental Caries Prevalence in Young Adult Populations During the Past 35 Years

TIME	POPULATION	AGE	DMFT	DT	MT	FT	FT/DFT%
1950	Univ. Freshmen	17-20	14.6	2.1	2.0	10.5	83
1956	Naval Recruits	19	15.4	7.0	2.4	6.0	46
1960-62	US Adults	18-24	14.0*	2.1	5.1*	6.8	75
1960-63	NC Adults	20-24	15.3*	4.3	4.6*	6.4	60
1963-64	AF Recruits	17-22	14.6	6.8	1.3	6.5	49
1966	Naval Recruits	17-23	14.2	5.0	1.9	7.3	59
1971-74	US Adults	18-24	10.9*	2.0	1.9*	6.9	75
1976	NC Adults	20-24	11.7*	2.0	2.9*	6.8	77
1975-78	Naval Recruits	19	12.9	6.5	0.6	5.8	47
1979	Boston Youth	17	10.7	1.4	0.9	8.4	86
1979	Tennessee Youth	17	6.8	—	0.4	—	—
1979-80	US Youth	17	6.4	0.9	0.2	5.3	86
1980	Iowa Adults	18-24	10.7*	1.6	2.9*	6.2	70
1979-82	Naval Recruits	19	8.5	3.7	0.5	4.2	53

*Includes third molars

FIGURE 1

Statewide comparison of DMF teeth per child over the last 30 years in Indiana*

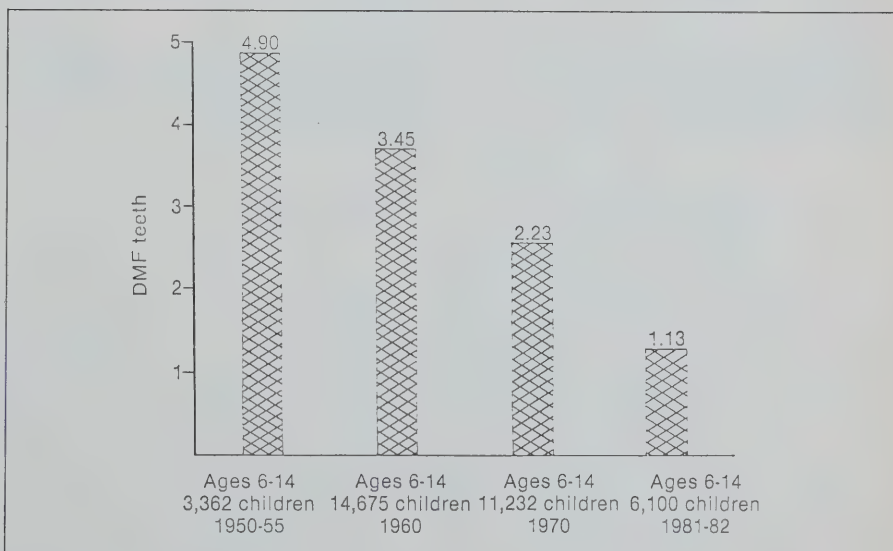


exhibit the influence of diverse factors that affect caries prevalence and may render some comparisons inaccurate or inappropriate, consistent trends over time strongly suggest that the general conclusions discussed in this paper are valid. Viewed singly, each of the data has some inadequacy, but collectively the findings take on a significance that transcends these deficiencies. Conclusions about lower caries prevalence in adults cannot be as firm as that for children. However, the collective evidence seems sufficient to warrant the opinion that caries has declined in U.S. adult populations.

Unfortunately, even though a reasonable case may be made for the assumption that caries trends will continue downward and that as adult groups age they will maintain relatively lower DMFT scores, as others have pointed out,^{55,62} the treatment needs

of our current adult population will continue at high levels for decades. For example, current 35-44 year-olds have experienced decay in about half of their teeth. Replacements for these restorations and prosthetic treatment as well as the treatment of some new disease will be required for a group that will remain largely dentulous and survive an average of another 35-40 years of life. Replacement dentistry will consume a high proportion of practitioner time. Several studies have indicated that the average amalgam restoration is replaced every four to eight years.⁶³⁻⁶⁶ No quick reversal is possible of the consequences of the high caries attack rates that existed when these individuals were children and youths 20-30 years ago.

Despite the improved dental care which Americans receive,^{67,68} a high degree of need still exists. Estimates from the NDCPS

of 1979-80 indicate that even with the decline in caries, some 21 million restorations are required in primary teeth and 32 million surfaces need restoration in the permanent dentition of children aged 5-17.⁶⁹ We have endured tremendously high caries levels for so long that by comparison the newly attained caries decline may cause complacency about a disease whose prevalence remains high in comparison to other diseases. When everyone has it, less importance is attached to being free of it.⁷⁰ Many Americans, including some health professionals, consider dental caries more of a condition rather than an infectious disease that is still the most prevalent chronic disease affecting the population.

Even though current caries incidence and past caries experience will necessitate high levels of treatment for some time, there is considerable reason for expecting continued caries decline in future years. Americans are becoming healthier in many regards.⁷¹ Multiple factors appear to be involved in these gains, though precise mechanisms are not fully understood. Most improvements in health status between 1900 and 1960 are assigned to gains against infectious diseases. In recent years some chronic diseases have also been reduced. Since 1968, age-adjusted death rates for heart disease and strokes have declined by 30 per cent. Most Americans are healthier, better educated, and more demanding of health services, including preventive ones.⁷² All of the 10 leading causes of death in the U.S. have behavioral components,⁷¹ and considerable numbers of people are improving lifestyles as better information has become available about the relation of poor lifestyles to ill health.⁷³

Improved oral health practices both on a personal and professional level have been observed in recent years, concurrent with the gains in general health. Dentists have increased the degree to which they provide preventive services and patients have increased their access to care and their use of preventive agents.⁷⁴ A principal example is the sale of fluoride dentifrices that constituted 67 per cent of the U.S. market in 1970 and increased to 94 per cent in 1984.⁷⁵ Even though the number of visits to dental offices remains fairly constant, more services, including preventive ones, are sought and provided per patient visit.⁶⁸

Dental sealants are a preventive procedure that would lower caries prevalence considerably if they were more routinely used in dental practice. Results from the NPDDP^{21,76} showed sealants to be the single most effective procedure of all used in the reduction of decay. Even where substantial caries declines have occurred, precisely those surfaces still susceptible to significant caries attack — fissured surfaces

FIGURE 2

Distribution of DMFT scores in children aged 6-17 years in 1963-70 compared to 1979-80

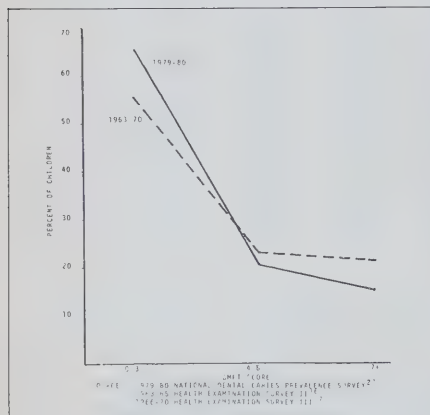


FIGURE 3

Percent distribution of U.S. children according to DMFT status, aged 5-17

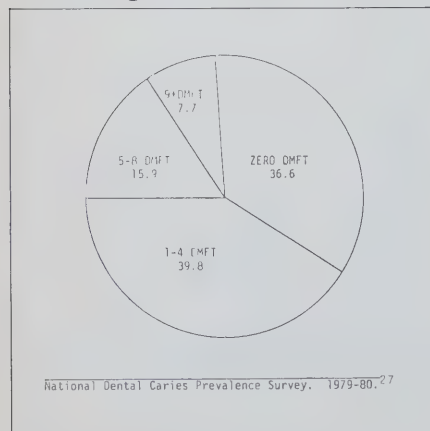


FIGURE 4

The Relation of DFT To Age In Massachusetts Children In 1951 Compared To 1979-81

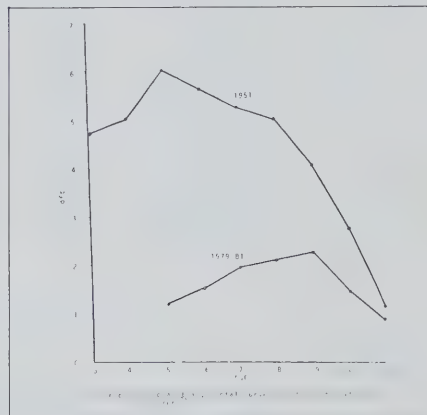
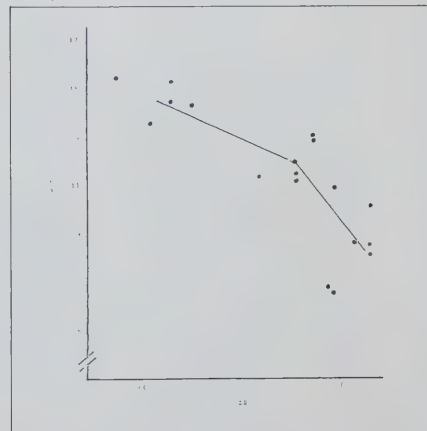


FIGURE 5

DMFT Scores for U.S. adult groups, 17-24 years, by year of examination



of molars — can be protected almost completely from decay by sealants. Publicity given to the benefits and improved technology of sealants should aid their promotion and increased use. Four U.S. National conferences to promote the understanding and use of sealants were held during 1981-83.

The generally improved restorative materials in conjunction with reduced caries attack on anterior teeth and smooth surfaces of posterior teeth, will further reduce caries prevalence.⁷⁷ Acid etching techniques and elimination of an "extension for prevention" philosophy in favor of conservative preparations will continue to reduce the need to extend preparations for retentive purposes. It is realistic to expect continuing improvements in materials and techniques. Greater understanding and acceptance of the concepts of remineralization of enamel may lead to more conservative preventive approaches and further reduce the need to restore decalcified tooth surfaces.⁷⁸

Another reason for projecting a decline in caries prevalence into adulthood is that the attack rate peaks between ages 15-19.^{8,60,79} The carrier status of *Streptococcus mutans* reaches a peak in adolescence concomitantly with caries activity and then gradually declines into adulthood.⁶⁰ Because a caries decline in U.S. youths and young adults has been demonstrated (Table 10) during these peak years of bacterial infectivity, it seems unlikely that there would be any significant increase in new lesions after this age. However, it has been suggested that caries prevalence may assume an oscillatory behavior and rise again.⁸⁰ If preventive activities and health oriented behavior continue in Americans as we expect, we think a new wave of caries attack on mature teeth previously protected from disease seems an unlikely occurrence.

CONCLUSIONS

In summary, caries prevalence in the majority of U.S. children and youths is at unprecedented low levels and continued decline is expected. The average child experiences a simple fissure pattern of decay or none at all. Few children experience the extraction of permanent teeth or the need to have anterior or other smooth tooth surfaces restored. About 20 per cent of children continue to have relatively high caries experience and account for a majority of the total disease in the young population. There is limited current information on adults. However, numerous nonrepresentative data provide relatively consistent findings suggesting that at least young adults also are experiencing a decline in caries prevalence. The average adult has three or four fewer decayed or missing teeth than 15 years ago. Older adults, because of high

past disease experiences, have not yet attained appreciable reductions in caries. The restorative needs of older adults will continue to command considerable attention for years to come. However, it is predicted that the current young adult population will maintain much lower caries levels and that future older adults will also have a considerably reduced caries experience with few teeth lost to decay and a much simpler restorative pattern than currently.

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Readers who wish to have a complete listing of references may receive same by writing to the editor, Journal of the Canadian Dental Association.

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October 18-19, 1985

The Sheraton Centre
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PROGRAM

Friday, October 18th. Defining The Problem: Nationally & Internationally.

- 8:00 a.m. – 8:15 a.m. Opening Remarks, Dr. Ian Vogan
8:15 a.m. – 9:15 a.m. Canadian Manpower Data – An Update, Mr. R.K. House
9:15 a.m. – 9:30 a.m. Questions
9:30 a.m. – 10:30 a.m. Supply Slide Projections, Dr. Don Lewis
10:30 a.m. – 10:45 a.m. Questions
10:45 a.m. – 11:00 a.m. Coffee
11:00 a.m. – 12:00 a.m. Changing Dental Needs Of The Canadian Population,
Dr. Don Lewis
12:00 p.m. – 12:15 p.m. Questions
12:30 p.m. – 1:30 p.m. Lunch
1:30 p.m. – 2:30 p.m. (i) Dentist Unemployment
A Scandinavian Reality, Dr. Rod Moore
(ii) Manpower Issues In The United States
2:30 p.m. – 2:45 p.m. Questions
2:45 p.m. – 3:00 p.m. Coffee
3:00 p.m. – 4:00 p.m. The Manpower Situation In Great Britain And
The Commonwealth, Dean Derek Chisholm
4:00 p.m. – 4:15 p.m. Questions
4:15 p.m. – 5:00 p.m. Panel Discussion, Mr. House, Dr. Lewis
6:30 p.m. – 8:00 p.m. C.D.A. Host Reception, Sheraton Center

Saturday, October 19th. – *Strategies And Possible Solutions*

- 8:30 a.m. – 8:45 a.m. Dr. John Silver
8:45 a.m. – 9:00 a.m. Mr. John Gillies Corporate Bodies
9:00 a.m. – 9:15 a.m. Mr. Don Pamentor
9:15 a.m. – 9:45 a.m. Dean Schwartz – A.C.F.D.
9:45 a.m. – 10:00 a.m. Dr. Bill Bedford – The Role Of Government
10:15 a.m. – 10:30 a.m. Questions
10:30 a.m. – 11:00 a.m. Coffee
11:00 a.m. – 11:30 a.m. Dean Beagrie – Dental Manpower In The Third World
11:30 a.m. – 11:45 a.m. Ms. Pat Johnson – C.D.H.A. Presentation
11:45 a.m. – 12:00 p.m. C.D.A.A. Presentation
12:00 p.m. – 12:15 p.m. Questions
12:30 p.m. – 2:00 p.m. Lunch
2:00 p.m. – 4:00 p.m. C.D.A. Panel – The Role of C.D.A.
Vis-à-vis The Problem And The Solution
Open Forum For Discussion

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Announcements

SEPTEMBER/SEPTEMBRE

September 19-22: The 4th International Symposium on Ceramics, Hyatt Regency O'Hare, Chicago, Illinois. Sponsored by Quintessence Publishing Co. Inc. Symposium topic: "Current Perspectives in Dental Ceramics." Contact: Quintessence Publishing Co. Inc., 8 South Michigan Ave, Chicago Ill. 60603, 312-782-3221.

September 20-27: Annual meeting of the Canadian Society of Forensic Science jointly with the **Society of Forensic Toxicologists** and the **American Society of Questioned Document Examiners**, Hyatt Regency Hotel, Montreal, Quebec. Contact: Executive Secretary, Canadian Society of Forensic Science, 2660 Southvale Cres., Suite 215, Ottawa, Ont., K1B 4W5, 613-731-2096.

September 21-27: 1985 Congress of the Federation Dentaire Internationale is being held in Belgrade, Yugoslavia.

September 26-28: Canadian Academy of Prosthodontics annual meeting at the Westin Hotel, Ottawa, Ont. Contact: Dr. B.M. Jackson, 22 Water St. S. Kitchener, Ont. N2G 4K4.

September 26-28, 1985 – Annual meeting of the Canadian Academy of Restorative Dentistry; Westin Hotel, Ottawa, Ontario. Contact Dr. Harold Beach, 225 Metcalfe Street, Suite 504, Ottawa, Ontario K2P 1P9.

September 26-28: The Northeast Canadian/American Health Council Sixth Biennial Conference, Hartford Marriot Hotel, Farmington Connecticut. Topic: "Navigating Troubled Waters: An Opportunity for Innovation in Health Care." Contact: Mr. Wayne L. Carew, Sixth Biennial

Conference, Public Relations Chairman, (Canada), Executive Director, Prince County Hospital, 259 Beattie Ave., Summerside, PEI, C1N 2A9, phone 902-436-9131.

September 26-29: American Dental Assistants' Association 61st annual session, Hyatt Regency, Chicago Illinois. Contact: AADA 666 N. Lake Shore Dr. Suite 1130, Chicago Ill. 60611 or call 1-800-621-6713.

September 27-29: Canadian Academy of Endodontics annual meeting, Ottawa Ontario, Four Seasons Hotel, Contact: Dr. Lorne Chapnick, 2200 Yonge St., Suite 1009, Toronto, Ont. M4S 2C6.

September 27-29: Fifth International Dental Electrosurgery Conference-Workshop, Grand Island Holiday Inn, Niagara Falls, New York. Contact: Dr. M.J. Oringer, Academy Executive Secretary, P.O. Box 205, Thousand Island Park, New York, 315-482-9592.

September 28-29: International Association for Orthodontics – Quebec Chapter – is sponsoring Dr. Donald Woodside from the University of Toronto speaking on Functional Appliances. Montreal, Quebec. Contact: Dr. Don Scott 514-932-6322.

September 29–October 1: Annual Meeting of the Association of Prosthodontists of Canada, Four Seasons Hotel, Ottawa, Ontario. Contact: Dr. Donald Kramer, 506-700 Bay Street, Toronto, Ontario, M5G 1E2.

September 29–October 2: Canadian Dental Association national convention. Ottawa, Ontario, at Canada's Capital Congress Centre. Contact: Canadian Dental Association, 1815 Alta Vista Dr., Ottawa, Ont. K1G 3Y6.

OCTOBER/OCTOBRE

October: Golf at Gleneagles, Atlantic Dental Seminars, Gleneagles Scotland, "Comprehensive Adult Dentistry". Contact: Course Director (North America) 1545 Birmingham St., Halifax, N.S., B3J 2J6.

October 1: The Prosthodontic Research section of the American Association for Dental Research announces the Novice Prosthodontic Research Award. Deadline for submission of abstracts is **October 1, 1985**. Participants are eligible for \$1,000 winners award. The award is sponsored by Coors Biomedical Company. Contact: Dr. John B. Houston, 700 Bay St. #404, Toronto, Ontario, Canada, M5G 1Z6.

October 6-9: The VI International Congress of Dermatologic Surgery, Università Cattolica del Sacro Cuore, Rome, Italy. Contact: DIT Travel Inc. 1183 Finch Avenue West, Suite 203, Toronto, Ontario, M3J 2G2, 416-663-9100.

October 8-12: Austrian Dental Congress, Graz, Styria, Austria. Contact: Styrian Dental Surgeons and Dentists Association, Univ.-Zahnklinik, A-8036, Graz -LKH, Austria.

October 10-12: 8th Annual Greater Niagara Frontier Dental Meeting, Buffalo Convention Centre, Buffalo, New York. Contact either Ms. Pauline Bress or Mrs. Jennie Pohl, SUNY/Buffalo Dental Alumni Association, 167 Farber Hall, Buffalo, New York 14214 716-831-2320.

October 13-18: 6th Congress of the International Society for Laser Surgery and Medicine. Organized by the Israel Society for Laser Surgery and Medicine. Jerusalem, Israel. Contact: DIT Travel/Convention Divi-

sion, 1183 Finch Avenue West, Suite 203, Downsview, Ontario M3J 2G2, Attention: Rifka Boruchowicz, Convention Secretariat, phone 416-663-9100/07.

October 26-November 1: 34th Annual Meeting of the American Academy of Implant Dentistry, University of California, School of Dentistry, San Francisco California. Contact: Mr. John P. Winiewicz, The American Academy of Implant Dentistry, 515 Washington Street, P.O. Box 2002, Abington, Massachusetts, 02351, 617-878-7990.

October 30: The first national and international scientific encounter of the dental schools, during the XVIII National and International Congress of the Mexican Dental Association. Contact: Admgen Ezequiel, Montes 92, Mexico, D.F., 06030 Mexico 915-566-61-33.

October 31-November 2: The 6th International Conference for Orthodontics, Sheraton Hotel, Munich West Germany. Sponsored by Quintessence Publishing Co. Inc. Theme: Adult Orthodontics and Orthognathic Surgery. Contact: Quintessence Publishing Co. Inc. 6 South Michigan Ave, Chicago Ill. 312-782-3221.

NOVEMBER/NOVEMBRE

November 1-5: 42nd Annual meeting of the American Institute of Oral Biology, Spa Hotel, Palm Springs, California. Contact: Executive Secretary, P.O. Box 481, South Laguna, California, 92677.

November 2-5: 126th Annual Session of the American Dental Association, San Francisco California. Contact: The American Dental Association, 211 East Chicago Ave., Chicago Ill., 60611 U.S.A.

November 7-9: First International Beijing (Peking) Symposium in Dentistry and First International Dental Trade Show. Inaugural theme will be dental materials and their clinical use. Contact: Quintessence Publishing Co. Inc., 8 S. Michigan Ave., Suite 2301, Chicago ILL. 60603, U.S.A. Telephone (800) 621-0387.

November 18-21: American Dental Association, Foods Nutrition and Dental Health Program in co-operation with the University of Texas, Health Science Centre at San Antonio, Dental School, announces a scientific consensus conference on **Methods for Assessment of the Cariogenic Potential of Foods**, University of

Texas Health Sciences Centre, San Antonio, Texas. Contact: Dr. Dominick DePaola, Chairman, 7703 Floyd Curl Drive, San Antonio, Texas, 78284, 512-691-6601.

November 22-23: The Ontario Dental Association and the Ontario Academy of General Dentistry will present the Perio Symposium of the Decade. Speakers include Drs. Ron Nevins, Roger Wise, Norton Taichman, Steven Offenbacher, William Becker and Max Listgarten. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ontario, M5R 2P1, 416-922-3900.

November 28: 1985 Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 30: American Academy of Dental Electrosurgery annual meeting. New York Hilton Hotel. Contact: American Academy of Dental Electrosurgery, 57 West 57th St., Suite 1001, New York, New York, 10019, 212-755-6630.

1986+

January 30-February 2, 1986: Health-Com '86, Las Vegas, Nevada, Las Vegas Convention Centre. Highlights computer, telecommunications and information systems specifically for the healthcare industry. Contact: Lin Fish/Pete Soraparu, Fleishman Communications Inc. 312-397-7744.

February 16-19, 1986: 121st Chicago Midwinter Meeting, Chicago Hilton and Towers, Chicago Illinois. Theme is "New Horizons." Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Illinois, 60602, 312-726-4076.

March 1986: The International Orthodontic Conference, Sheraton Rotorua Hotel, Rotorua, New Zealand. Contact: Ron Roberts, Air New Zealand, 151 Bloor St. West, Suite 340, Toronto, Ont. M5S 1S4.

April 6-9, 1986: International Rehabilitation Week, includes a conference and exhibition at the New York Convention Centre, New York City. Contact: EJJ Management Inc., 225 West 34th St. Suite 905, New York, NY. 10122, 212-563-5461.

April 7-12 1986: 23rd International Dental Show and German Dentists' conference in Cologne, Germany. Contact:

Messe-und Ausstellungs-Ges. m.b.h. Koln, Messeplatz, Postfach 210760, D-5000 Koln 21 (Deutz) West Germany.

May 2-4, 1986: The 2nd International Symposium on Periodontics and Restorative Dentistry. Westin Hotel, Boston Mass. Sponsored by Quintessence Publishing Co. Inc. Contact: Quintessence Publishing Co. Inc. 8 South Michigan Ave. Chicago Ill. 60603 312-782-3221.

May 21-23, 1986: Expodent 1986 Trade Fair and Congress for Present Day Dentistry and Dental Technology. Utrecht, Holland. Contact: Royal Netherlands Industries Fair, Postbus 8500, 3503 RM, Utrecht Holland.

June 26-29, 1986: 10th International Symposium on Dental Hygiene. Oslo, Norway. Scandinavia Hotel. Abstracts must be submitted by **November 1, 1985**, to: The Scientific Committee, 10th International Symposium on Dental Hygiene, P.O. Box 438, 1301 Sandvika, Norway. For more information contact either Inger-Lise Bryhni or Elisabeth Olsen Kolbjornsen at the above address.

July 1, 1986: Applications are being accepted for the **Postdoctoral program, Dental Diagnostic Science at the University of Texas**, Health Science Center at San Antonio for the class beginning **July 1, 1986**. Address inquiries to: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Centre at San Antonio, 7703 Floyd Curl Dr., San Antonio TX. 78284.

August 24-27, 1986: Canadian Dental Association Annual Convention. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

September 9-12, 1986: International Association of Oral Pathologists in association with the British Society for Oral Pathology - Biennial Congress, Edinburgh, Scotland. Contact: Dr. J.C. Southma, Department of Oral Medicine and Oral Pathology, University of Edinburgh, Chambers St., Edinburgh, Scotland, EH1 1JA.

August 30-September 2, 1987: CDA National Convention, Quebec City, Quebec. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

August 28-31, 1988: CDA National Convention, Edmonton, Alberta. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

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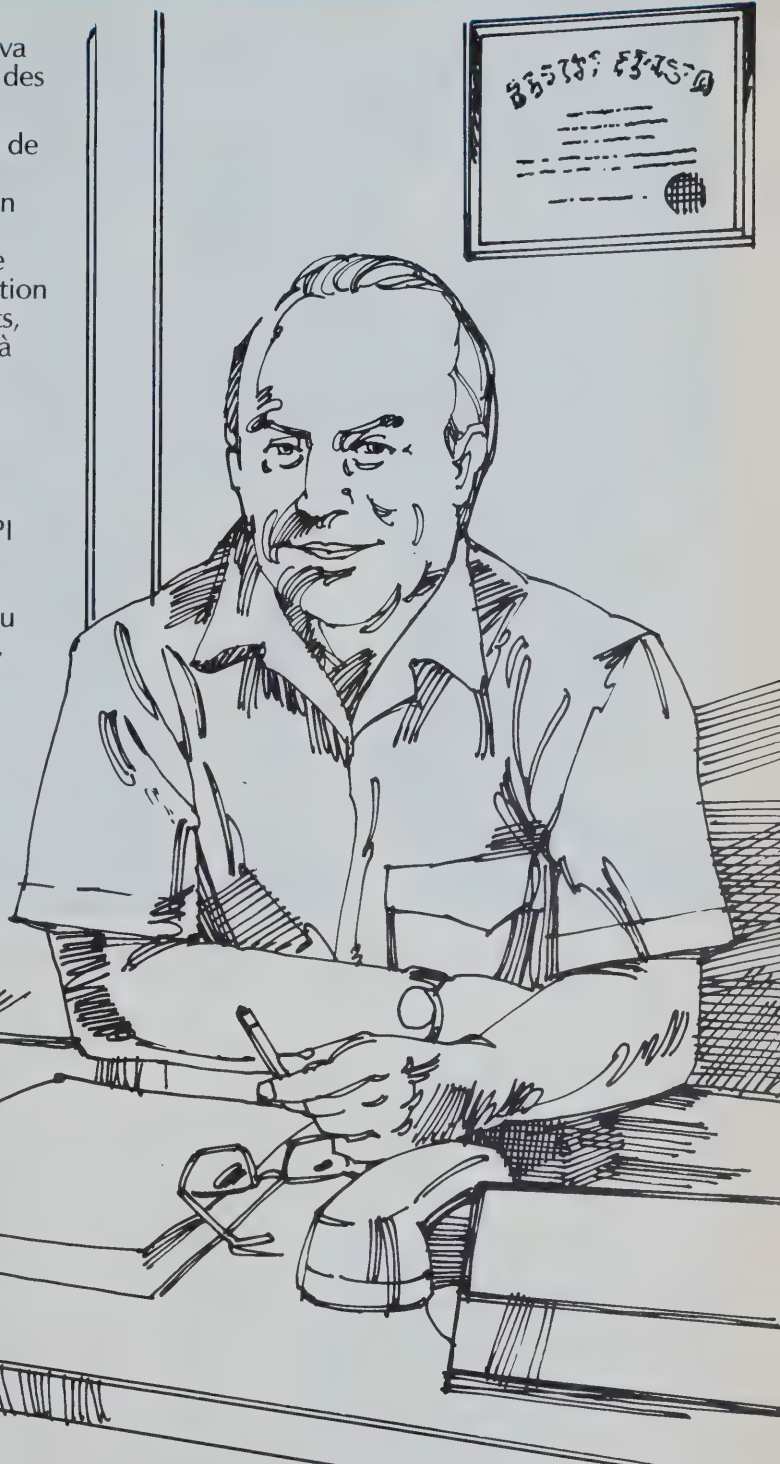
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- Traumatic Injuries of the Face and Jaws in Children.
- Temporomandibular Joint Disorders in Children and Adolescents.

Noni MacDonald, M.D., Children's Hospital of Eastern Ontario, Ottawa, Canada.

- An Update on Hepatitis, AIDS, and their relevance to the dentists and his patients.

Robert Peterson, M.D., Ph.D., Children's Hospital of Eastern Ontario, Ottawa, Canada.

- Nitrous Oxide — A Drug of Abuse.

Malcolm Park, M.D., Ron Ensom, M.S.W., and Arlington Dungy, D.D.S., Children's Hospital of Eastern Ontario, Ottawa, Canada.

- Panel Discussion — Child Abuse Its Detection and Management with Emphasis on the Dentists' Role.

REGISTRATION AND RECEPTION — FRIDAY,
SEPTEMBER 27, 1985.

SCIENTIFIC SESSIONS — SATURDAY, SEPTEMBER 28,
1985 (9:00 A.M. — 5:00 P.M.)

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SUNDAY, SEPTEMBER 29, 1985
(9:00 A.M. — 12:00 P.M.) AT

THE WESTIN HOTEL, OTTAWA, ONTARIO, CANADA.

Further information or details on registration can be obtained by writing:

Dr. A.F. Dungy, Chairman,
VI Canadian Congress on Dentistry for Children,
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DALHOUSIE UNIVERSITY FACULTY OF DENTISTRY DEAN

The current term of the Dean of the Faculty of Dentistry comes to an end in June 1986. Persons interested in applying for this position should write to the Chairman of The Committee To Advise The President On The Appointment Of A Dean giving full details of teaching, research and administrative experience and including names of referees who can be contacted by the Committee.

The Faculty of Dentistry is made up of nineteen departments and divisions, a School of Dental Hygiene as well as a Graduate Program in Oral and Maxillofacial Surgery and a Post-Graduate Program in Periodontics. The Dean is expected to provide academic leadership to the Faculty, and is responsible to the President for appointments, promotions, tenure and budgetary matters relating to the Faculty.

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**Dr. D.G. Pentz, Chairman
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**Dr. E.P. Millar,
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British Columbia

NOTICE OF VACANCY ORAL PATHOLOGY

Faculty of Dentistry

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**Dr. J.G. Silver, Head
Department of Oral Medicine
Faculty of Dentistry
The University of British Columbia
2199 Wesbrook Mall
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P3A 3V8**

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8. Newman, Sheldon. A New Version of Light Polymerized Composite Resins. Journal of Tennessee Dental Association 64-2.

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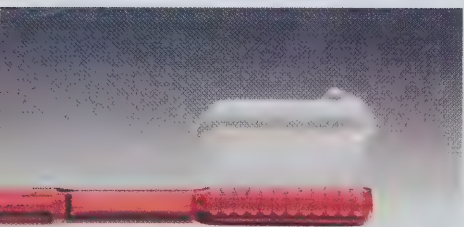
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References: 1. Ostrom, C.A. et al., J Dent Res, 56(3):212-221, 1977. 2. Arends, J., ten Cate, J.M., J Cryst Gro, 53:135-147, 1981. 3. Silverstone, L.M., Caries Res, 11 (Suppl. 1):59-84, 1977. 4. Data on file at Procter & Gamble, Inc. 5. Mobley, M.J., J Dent Res, 60(12):1943-1948, 1981. For further information, please contact Crest Professional Services, P.O. Box 355, Station A, Toronto, Ontario M5W 1C5

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Because of the ever-increasing hazards of AIDS and Hepatitis B, the "wet-fingered" dentist should soon only be a memory.

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EXIT THE “WET-FINGERED” DENTIST

The massive amount of publicity recently given by the media to the increase in the number of reported cases of AIDS and Hepatitis B must have everyone involved with dentistry very concerned. The possibility exists of infection being transferred via the oral fluids to a dental team member. This would suggest that the era of the rubber glove is upon us. The days of placing a naked hand in another's mouth for the purpose of rendering dental services are definitely over.

According to recent information, (an 1985 update on AIDS by Dr. John Hardie, JCDA July 1985), no dental personnel in the “high-risk groups” have contracted AIDS, but with an incubation period of up to five years, who knows how many cases may be latent? It is known that pre-clinical and sub-clinical cases exist, so patients who may be carriers cannot always be identified.

Cases of Hepatitis B have certainly been reported among dental personnel. And the oral cavity is the likely point of contact. Thus, this writer decided six months ago to cease being a “wet-fingered” dentist. Now the prospect of treating anyone bare-handed is unthinkable.

The wearing of gloves is for the protection of the operator and staff who, in the course of a day, may see up to 20 people. If a dentist were a carrier of either AIDS or Hepatitis B, then, of course, wearing gloves would protect the patients. Another benefit to the patient is that a gloved hand can be made cleaner or more sterile than a bare one which has grooves, wrinkles and

fingerprints to act as bacterial traps. However, total sterility is neither achievable nor is it essential for routine dentistry.

Obviously a change of gloves per patient would be ideal, but in practice this is not realistic and as stated previously it is the operators who are at risk and not the patients.

Getting used to glove-wear can be frustrating, but after the decision is made to do it, there should only be a few days until wearing becomes routine. After washing and drying, the stickiness of the outside of the latex can be removed by rubbing on a little talc or cornstarch. Thereafter any dental procedure, including hand-reaming or filing in endodontics, can be carried out without fuss.

As further protection, operator and assistant should wear glasses and well-fitting masks during any aerosol producing procedure. It is also noted that patients rarely questioned the appearance of the new devices. If they did, however, the answer that these measures were to improve hygiene in the dental office was quite acceptable. A decision to utilize the Hepatitis B vaccine is also something that should be considered in this scheme of protection and is recommended by many authorities on the subject.

The cost factor in implementing these measures for dentist and staff is minimal when measured against the benefits of protection from either of these dreadful diseases.

*Dr. J. D.R. Grier
Member, Editorial Board, JCDA
Victoria, B.C.*

BRAVO — THANK YOU — PLEASE



- "As a participant in the first CFDE sponsored Summer Teaching Institute, I wish to thank the CFDE for its courage in funding such an innovative program. The intensive two week learning experience will pay dividends for years to come in our respective universities."
- "The CFDE should be commended for its support and commitment to dental teaching."
- "Dr. May is a dynamic speaker and was able to gain and sustain the interest of the audience during his address".
- "An overflow crowd squeezed into our largest lecture theatre for his presentation on 'What is a Profession — How does it relate to Ethics?'"
- "I believe Dr. May made a profound impression on those people who were privileged to hear him."

These unsolicited comments from Halifax, London, Saskatoon, Winnipeg and Vancouver attest to the cogency and impact of two innovative activities — The Summer Teaching Institute and The Murray McDonald Memorial Lecture — to which, in the long term, the Canadian Fund for Dental Education has committed well in excess of \$100,000.

In addition, the traditional ongoing activities have received appropriate Fund support up to the level of our resources. In particular, grants to the dental schools have been increased this year and dental awareness programs, considered to have high priority by the Fund Trustees, have been well supported. Conferences for students, educators and researchers, and teacher training fellowships continue to receive very substantial grants.

Two other new programs should be mentioned with pride. A Health Screening Program, designed for the benefit of the practising dentist, which took place at this year's CDA Convention in Ottawa, and the February 1986 Pre-Licensure Conference, the results of which could beneficially enhance dental education and practice in the future, are being funded by CFDE. In addition, other exciting projects are in the planning stages.

These achievements resulted this year largely because in 1984 the dentists of Canada contributed almost \$100,000, exceeding, for the first time in many years, the most generous amount we receive annually from dentally related industry. One hundred dentists contributed, as Patrons, in excess of \$200.00 each, 350 Honour Members donated between \$100.00 and \$200.00 and there were 900 supporters at a lower level. In addition, dental hygienists, dental organizations and income from capital funds were well represented on the lists.

The first million dollars, which CFDE distributed for the

advancement of dentistry, was raised in fifteen years, but the second million was acquired in less than half that time. The needs are changing and continually increasing, and as a favoured profession in a position of moral purpose and enlightened self interest, we are surely compelled to respond generously so that programs can be continued and expanded.

I invite all my colleagues to invest in the enhancement of dentistry's future.

To those who have never contributed:

Consider accepting a fair share of the challenge we derive from our privileged professional position.

To former contributors:

The Fund's ongoing commitment to professional enrichment and public service requires your regular support.

To present supporters:

As you are able, your sense of pride in the Fund will increase as you see your name among the growing lists of the more substantial contributors.

In addition, "In Memoriam" and "Tribute" gifts as well as bequests are widely considered to be appropriate and appreciated as occasions arise.

At the beginning I referred to the kind letters from admirers of CFDE programs. One wrote "To demonstrate my conviction that this . . . is worth funding, I am putting my money where my mouth is. Enclosed you will find a contribution to the CFDE."

My fellow Trustees and I trust that this year, during "October — CFDE Month", thousands of Canadian dentists will do likewise!

David K. Peters, DDS
Chairman
CFDE Board of Trustees

DENTAL, HYGIENE, ASSISTANTS PROGRAMS RECEIVE ACCREDITATION

Undergraduate programs in dentistry, dental hygiene and dental assisting, and also postgraduate and graduate programs in CDA-recognized specialties, which have been evaluated are listed below. This list is amended annually, following the meeting of the CDA Council on Education and Accreditation.

If accredited status is desired concerning any other program not listed, the information is available upon a written request to the CDA Council on Education and Accreditation.

Dentistry programs

Alberta — Faculty of Dentistry, University of Alberta, Edmonton; British Columbia — Faculty of Dentistry, University of British Columbia, Vancouver; Manitoba — Faculty of Dentistry, University of Manitoba, Winnipeg; Nova Scotia — Faculty of Dentistry, Dalhousie University, Halifax; Ontario — Faculty of Dentistry, University of Western Ontario, London, and Faculty of Dentistry, University of Toronto. Québec — Faculty of Dentistry, McGill University, Montréal; Faculté de médecine dentaire, Université de Montréal; l'École de médecine dentaire, Université Laval, Ste-Foy. Saskatchewan — College of Dentistry, University of Saskatchewan, Saskatoon.

Dental Hygiene programs evaluated are

Alberta — School of Dental Hygiene, Faculty of Dentistry, University of Alberta, Edmonton; British Columbia — Program of Dental Hygiene, Faculty of Dentistry, University of British Columbia, Vancouver; Manitoba — School of Dental Hygiene, Faculty of Dentistry, University of Manitoba, Winnipeg; Saskatchewan — Wascana Institute of Applied Arts and Science, Dental Division, Regina. Ontario — Algonquin College of Applied Arts and

Technology, Ottawa (English Program); George Brown College of Applied Arts and Technology, Toronto; Canadian Forces Dental Services School, Borden, Ont.; Canadore College of Applied Arts and Technology, North Bay; Durham College of Applied Arts and Technology, Oshawa; Seneca College, Willowdale; St. Clair College of Applied Arts and Technology, Windsor. Québec — Collège de Maisonneuve, Département d'hygiène dentaire, Montréal; John Abbott College, Ste Anne de Bellevue; CEGEP François Xavier Garneau, Sillery; Collège Édouard Montpetit, Longueuil. Nova Scotia — School of Dental Hygiene, Faculty of Dentistry, Dalhousie University, Halifax.

Dental Assistant programs:

British Columbia — College of New Caledonia, Prince George; Malaspina Community College, Nanaimo; Okanagan College, Kelowna; Vancouver Vocational Institute, Vancouver. Alberta — Northern Alberta Institute of Technology, Edmonton; Southern Alberta Institute of Technology, Calgary. Saskatchewan — Wascana Institute of Applied Arts and Technology, Regina; Kelsey Institute of Applied Arts and Science, Saskatoon. Manitoba — Red River Community College, Winnipeg; Keewatin Community College, The Pas. Nova Scotia — Nova Scotia Institute of Technology, Halifax. Ontario — Algonquin College of Applied Arts and Technology, Ottawa (English & French); Cambrian College of Applied Arts and Technology, Sudbury; Canadian Forces Dental Services School, Borden; Canadore College of Applied Arts and Technology, North Bay; Confederation College, Thunder Bay; Durham College of Applied Arts and Technology, Oshawa; George Brown College of Applied Arts and Technology, Toronto; Seneca College, Willowdale; St. Clair College of Applied Arts and Technology, Windsor. Prince Edward Island — Holland College, Charlottetown Centre, Charlottetown. Independent Study Program — Northern Alberta Institute of Technology, Edmonton.

JOURNÉES DENTAIRES 1985 A RESOUNDING SUCCESS

The 1985 Convention of l'Ordre des dentistes du Québec, — Les Journées dentaires — registered a record attendance this year and was declared an overwhelming success.

There was a total attendance of 5,717, comprised of 2,183 dentists, 594 hygienists, 812 dental assistants, 41 technicians, 981 exhibitors, 235 spouses, 420 guests, along with 136 dental students, 161 student hygienists, 150 student assistants and four technician students.

Organizers attribute the reason for the success to a greatly diversified scientific program which attracted the large gathering of dental personnel. This year the ODO counted among the delegates many dentists from the United States, Ontario, New Brunswick, Saskatchewan and British Columbia. Participation from non-Quebec dentists has increased notably.

Pre-Convention program

A two-day pre-convention program featuring two renowned speakers who have distinguished themselves in the most important dental gatherings on this continent, was termed "fantastic" by those in attendance. Karen Maowad whose lecture "Dental Team Management" brought together an entire dental team, and Dr. Ronald E. Goldstein, who, in his lecture "Esthetics Update" reviewed the latest concepts and materials in cosmetic dentistry, were responsible for the outstanding sessions.

The Convention itself lasted for three days and featured leaders in dentistry from the United States, Europe and Canada. It was difficult for delegates to choose from among the 50 speakers. The 17 table clinics and an audio-visual presentation further complicated the choice.

Dental hygienists, assistants and technicians were particularly spoiled this year with well-known speakers who dealt with current topics including the youth's values, the recall system and the promotion of fluorides.

On the light side, there were two evening

receptions to satisfy everyone. At the Meridien Hotel, a Quebec Hospitality Dance attracted close to 1000 persons and at the Four Seasons Hotel, the President's Gala included a gourmet dinner.

The commercial exhibition was more impressive than ever with more than 200 stands and 122 companies who came from many countries to present the most modern and sophisticated equipment in dental technology today.

Dr. Crawford — a guest

The President of the CDA, Dr. Ralph Crawford, attended the Convention as a guest of Dr. Marc Boucher, President of the ODQ, and was seen at many scientific and social events.

For those who attended the Journées dentaires du Québec 1985 this year will remain a memorable one as can be seen in the accompanying photographs.



Exhibitor explains dental materials to a group of interested hygienists.



Enjoying the "President's Gala" were, from left to right: Dr. Ralph Crawford, President of CDA, with his wife, Olga; Dr. Claude Chicoine, President of l'Association des chirurgiens dentistes du Québec; Dr. Marc Boucher, President of l'Ordre des dentistes du Québec; and Dr. Alain Vaillancourt, Dean of the Faculty of Dental Medicine, Université de Montréal.



Discussing a matter of mutual professional concern are, left to right: Dr. Marc Boucher, President of l'ODQ; Dr. Pierre-Yves Lamarche, directeur-général and secretary, ODQ; Dr. Ralph Crawford, President of CDA, and Dr. Marcel Proulx, directeur, École de Médecine dentaire, Université Laval, Québec.



Adding a touch of "nautical" entertainment was this musical group, Orchestre 'Francis Marais'.

DOTP GRADUATION PARADE, MESS DINNER, HELD AT CFB BORDEN, AUG. 1, 2

The Dental Officer Training Plan (DOTP) graduation parade was held August 2, at Canadian Forces Base Borden, Ontario, with Brigadier-General James N. Wright, the Director General Dental Services for the Canadian Forces, as reviewing officer. Other distinguished guests at the ceremonies were: Brigadier-General (retired) W.R. Thompson, Colonel Commandant, Canadian Forces Dental Services; Dr. P.R. Crawford, President of the Canadian Dental Association; Dr. K.F. Pownall, Registrar of the Royal College of Dentists of Ontario; Col. J. Cuddy, United States Army Dental Corps, and Major (retired) G.C. Hunt, President of the Royal Canadian Dental Corps Association.

Honors awarded

During the parade, Brigadier-General Wright presented the Honour Candidate

Award to Captain E.J. Karpetz of the University of Alberta, and the Field Exercise Award to Second-Lieutenant J.L.G. Fournier, Université de Laval. In all, 27 dental students, representing all ten dental schools in Canada, participated in the graduation exercises.

The Dental Officer Training Plan program is divided into two parts. During the first weeks of summer, students work in the larger military dental clinics across Canada where they familiarize themselves with military dentistry and a Canadian Forces Base environment.

The second phase consists of a four-week course conducted at the Canadian Forces Dental Service School in Borden, Ontario. During this time, the candidates acquire knowledge of clinic and practice management as well as administrative procedures, as they apply to the military environment. In addition, students spend a full week of vigorous field training during which time they acquire and perfect the skills necessary for the setting up of mobile dental clinics in an operational environment.

Formal dinner

As in past years a formal dinner, conducted in traditional military style, was held to honour the students on the occasion of their completion of Phase III training of their Dental Officer Training Plan program. This



Dr. P. Ralph Crawford, as President of the Canadian Dental Association, addressed the Dental Officer Training Plan graduates at the mess dinner at CFB Borden, Ontario. B Gen J.N. Wright, Director General Dental Services is seen, right.

formal dinner, which is referred to as a "Mess Dinner" in the military, was honoured by an address by Dr. Ralph Crawford, President of the Canadian Dental Association.

In an emotional and inspiring address, Dr. Crawford impressed upon the students the ever-existing need on the part of all members of the dental profession to undertake with utmost enthusiasm and dedication the new challenges that exist in dentistry today. He highlighted many of the present activities within the CDA, notably the Dental Awareness Program, the Dental Manpower Conference and the Accreditation process which ensures the same high standards of training throughout Canada.

He noted with satisfaction and pride the dental profession's contribution to the decreased prevalence of dental caries in Canada's younger population over the past two decades. He emphasized the requirement for the same vigour to be applied to the eradication of periodontal disease.

Dr. Crawford stressed the importance for all new dental graduates to become involved with their profession. The present generation of dentists welcomes the enthusiasm and new ideas of each new graduating class.

He informed the graduates of the ever-growing national support and representation in the Canadian Dental Association. In conclusion, Dr. Crawford underlined the requirement for maximum participation by all dentists in their national association in order to ensure that it remains as effective as possible in all its endeavours on their behalf.

DR. R. SANDERCOCK HEADS ALBERTA ASSOCIATION

Dr. G.R. Sandercock of Peace River, Alberta, assumed office as President of the Alberta Dental Association on July 1.

Past-President of the Association is Dr. Bryun Sigfstead of Edmonton.

Other officers who will serve in the 1985-86 term are:

President-Elect Dr. J.D. Aitken of Calgary, Vice-President Dr. V.H. Jones, of Calgary, and Board members: Dr. R.D. Sandilands, of Edmonton, Dr. G.F. Anderson, of Lethbridge, Dr. W.G. Mabey, of Edmonton, Dr. G.D. Harle, also of Edmonton, Dr. W.T. Brattley, of Red Deer, Dr. J.D. Aitken and Dr. B.M. Abrams, both of Calgary.

Convention in Jasper

ADA officials reported an enjoyable and productive Association Convention at Jasper Park Lodge earlier this year.

Delegates discussed such subjects as revision of continuing education qualifications, qualifications of para dental personnel, and means to enhance convention attendance.



B Gen J.N. Wright, Director General Dental Services, is seen inspecting the Dental Officer Training Plan graduates on parade at CFB Borden, Ontario.



B Gen J.N. Wright, Director General Dental Services, left, presents the Honor Candidate Award to Capt. E.J. Karpetz, of the University of Alberta.



B Gen J.N. Wright, Director General Dental Services, presenting the Field Exercise Award to Second Lieutenant J.L.G. Fournier of l'Université Laval.

Dr. Ralph Crawford, as President of the CDA, delivered what was described as a "very effective" speech.

Six ADA members were honored with Life Membership in the Association. Drs. D.S. Gilmour, C.C. Harrison, W.A. Quigley and H.L. Samuels, all of Edmonton, and Drs. A.D. Sparrow and L.K. Brooks, of Calgary, were the recipients.

Members who have served the profession and the public for 40 years or more, were also recognized.

Silver platters and a bouquet of roses for their spouses, were awarded to:

Dr. Don and Barbara Gilmour of Edmonton, Dr. Bert and Mylene Sparrow, of Calgary, Dr. Lorne and Geordie Brooks, of Calgary, Dr. Bill and Evelyn Quigley, of Edmonton, Dr. Harold and Ruth Samuels, of Edmonton and Dr. Cliff and Ruth Harrison, also of Edmonton.

'Outstanding Achievement'

The Alberta Dental Alumni Association's Outstanding Achievement Award for 1985 was presented to Dr. John Neilson.

Fit in 15 minutes
3 times a week!

PARTICIPATION



PRESIDENT'S COLUMN

By Dr. Brad Holmes

OLDS AND NEWS

By the time this article goes to print, we will be into a new year of operations at CDA. No doubt the year will bring new challenges and new faces along with the old guard "and old hat". Although the face isn't new, it is certainly new to the position. John Robertson assumes the position of President-Elect bringing a wealth of knowledge and experience from many years in organized dentistry. Ralph Crawford moves along to the Past-President's chair hopefully to a less hectic year where he can slow down to a jogging pace rather than always be on the dead run. This is a well-deserved break for Ralph who has shouldered a heavy load during his year. His will be a hard act to follow.

The only new face to appear on the Executive Council will be John Christie from Halifax. John is no stranger to organized dentistry and we look forward to his input. The repeaters: Jim Wright, Ron Markey, Ted Allison, Jack Niedermayer and J.C. Giguere, will all be back for another year which I am sure will be a good year.

Perhaps the most important "new" is Jardine Neilson, our new Executive Director. Jardine took office on August 1st and has very astutely made his presence known in many circles already. We are fortunate to have him on our team and look forward to working with him in the future. Jardine will head the CDA staff team of Senior Directors composed of Brian Henderson — Director of Accreditation, Linda Teteruck — Director of Educational Services, Jean Scrimger — Director of Administration, and Carolyn Hackland — Journal Editor.

On the political scene, as we are all aware, the new National Minister of Health and Welfare is the Hon. Jake Epp. In his ministry Mr. Dave Nicholson takes over from Dr. Lyle Black as Assistant Deputy Minister, in charge of the Medical Services Branch. We have already had meetings with Mr. Nicholson, and hope to have a meeting with Mr. Epp in the near future. Two previous meetings failed to materialize. We will probably see other new faces in the government scene over the year, but the familiar and friendly face of Bill Bedford continues in the position of senior dental consultant for National Health and Welfare.

We will be continuing many programs as well as pursuing new issues. Some of the programs include Dental Awareness, Taxation and Tariff, Provision of Health Care to our Native Peoples, as well as an extremely heavy year in the Accreditation area. Two new programs for the coming year are the Manpower Conference in Toronto and the Precicensure Conference in Montreal. We anticipate active participation in these conferences by Provincial, National and International organizations and representatives.

As the new President I am looking forward to a busy year facing new challenges and meeting new people. I can honestly say that our profession has some of the finest people it has been my privilege to meet.

As long as organized dentistry can continue to attract the calibre of people I see, the profession will remain in good hands.

CDA will continue to provide the opportunity for its members to make meaningful contributions to the profession. To do your part, all you need to do is participate.

ONTARIO 'DENTICARE' PLAN TEMPORARILY SHELVED

A "Denticare" program that would cover two million pre-school and elementary level children, senior citizens on guaranteed annual income supplement, institutionalized elderly and cleft palate sufferers, will not likely materialize for some time, according to the new Ontario Treasurer, Bob Nixon.

During the Ontario election campaign, early in the spring of this year, the now Ontario Premier David Peterson unveiled the Denticare program, which he felt was long overdue. "More than 20 years after the Hall Report, Ontario still does not have even a denticare program for children. Ontario, the richest province in the country, lags far behind Newfoundland, Nova Scotia, Québec, Saskatchewan and even the Yukon, in this respect," Mr. Peterson stated late in March.

He said the largest component of the program would be that portion for children. "Teams of salaried dental auxiliaries would be used to perform in-school screening and oral hygiene instruction. Each child would be examined once a year and those in need of corrective or restorative work, such as fillings, would be referred to local private practice dentists and where necessary, to private clinics. The dentists involved would bill the province for services rendered, based on a fee schedule negotiated by the Province and the Ontario Dental Association."

Mr. Peterson said that back in the mid 1960s, the "father of medicare" Mr. Justice Emmett Hall, had recommended that a partial denticare program be immediately introduced for children where "the greatest returns could be quickly yielded."

He said the "sole reason for the original exclusion of dental care from our health insurance program (at that time) was practical — to reduce initial costs and to allow time for a severe shortage of dentists to be overcome."

Explaining the funding procedure, Mr. Peterson said "our program would be paid for entirely from general revenues; no premiums or user fees would be charged." He said it is his party's position that "such charges are inequitable, regressive and inappropriate for any aspect of the health care system." (His party had also promised a gradual elimination of Ontario Health Insurance premiums).

Cost — \$50 to \$75 millions

The cost of such a program, when fully implemented, has been estimated at anywhere from \$50 to \$75 million.

Prior to the May 2 Ontario election, Ontario Dental Association Executive Director, John Gillies, was skeptical about the

program, and did not expect to see it get off the ground. He also doubted that Ontario's dentists would be happy about a billing system similar to the Ontario Hospital Insurance Plan, because the experience of the medical profession has shown an enormous time lag between delivery of a service and payment of claims. In addition, Mr. Gillies said, the overhead costs borne by dentists would have to increase to deal with the extra paper work.

In a late August statement, Ontario Treasurer Bob Nixon said that such a plan was not likely to be included in his first budget.

He said his Liberal Government's major concern would be to spend millions toward job creation and pursue measures to battle the provincial deficit, projected at \$2.2 billion in this fiscal year.

The denticare plan was not mentioned in Premier Peterson's first major statement following assumption of office early in the summer. In that statement he outlined the priorities of his Liberal administration's first legislative term.

Consultation needed

A Brantford, Ontario, dentist is concerned that "nobody knows anything about it." He said that if the denticare plan is to materialize, he'd like to see extensive consultation between the Ontario government and the dental profession before it is implemented.

ODA officials were not surprised at the omission of Denticare from Mr. Nixon's fiscal statement. Mr. Gillies said that the ODA believes the plan is "neither feasible nor affordable."

ALBERTA DENTIST WINS 'EARLY BIRD' DRAW

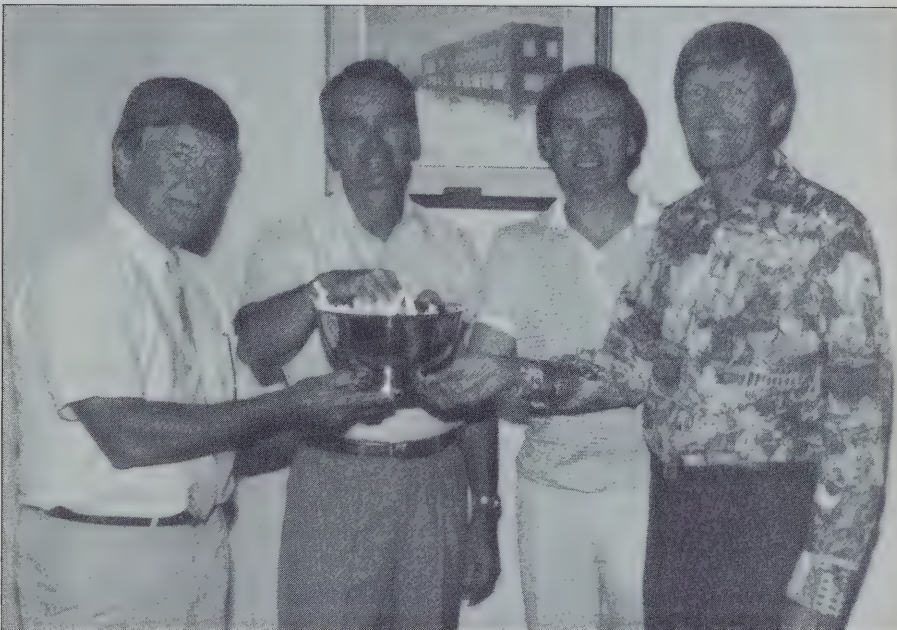
Dr. Irvine Skuba of St. Albert, Alberta, was the winner of two free systems passes to anywhere Air Canada flies in the "Early Bird" draw of names of early registrants for the CDA Convention in Ottawa, September 29-October 2.

His name was one of the many hundreds of dentists and dental auxiliaries who had

registered to attend the Convention full time, by the deadline of August 1.

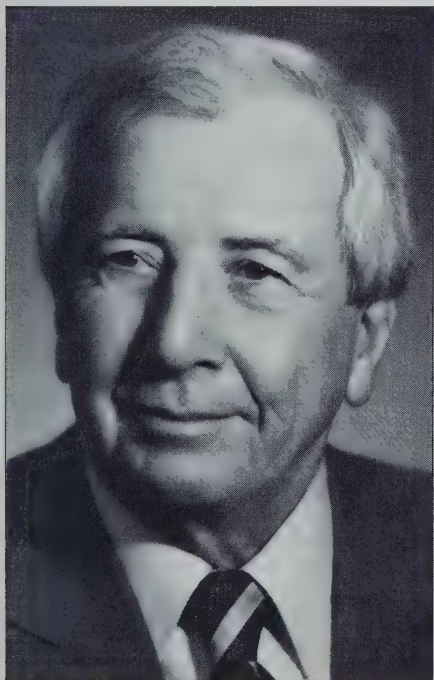
The drawing was made at the CDA headquarters building in Ottawa on Thursday, August 8 (allowing time for mail postmarked to August 1 to reach the Convention Committee).

Dr. Skuba may travel to any Air Canada destination with the exception of Singapore and Bombay.



Officiating at the "Early Bird" draw in Ottawa were, left to right: Mr. A. Jardine Neilson, CDA's Executive Director, Dr. Donald O'Connor, General Chairman, 1985 Convention, Dr. John Hardie, Scientific Program Chairman, and Dr. Bruce Robinson, Social Committee Co-Chairman.

Photo: by Clarence Mercalle



The late Murray McDonald

CFDE ESTABLISHES MURRAY McDONALD MEMORIAL LECTURE

In honour of its longtime Executive Director, the late Murray McDonald, the Canadian Fund for Dental Education recently established the Murray McDonald Memorial Lecture.

Mr. McDonald, who passed away in 1984, joined CFDE in 1967 and had great influence on the Fund's development throughout his service to the organization.

Dr. David Peters, Chairman of CFDE also announced recently the establishment of the Murray McDonald Endowment Fund. "The many donations received in Mr. McDonald's memory have been applied to the Fund and the Trustees are confident the Endowment Fund will grow in the years ahead," said Dr. Peters.

The income from the endowment fund will be used solely to support the Memorial Lecture.

The first Murray McDonald Memorial Lecture will be presented by Dr. William F. May,

Professor of Ethics at Southern Methodist University in Dallas, Texas. The inaugural lecture will be presented at the 1985 Winter Clinic of the Toronto Academy of Dentistry in November. The lecture will be entitled "The Intellectual and Moral Marks of the Professional."

MURRAY ELSTON NAMED ONTARIO HEALTH MINISTER

Murray Elston, a lawyer from Wingham, Ontario, has been named Ontario's new health minister.

The appointment was made by Ontario Premier David Peterson late in June, when Mr. Peterson was invited to form a government after more than four decades of Progressive-Conservative rule in Ontario.

He was first elected to the legislature in 1981. During 1981 and 1982 he was critic for the Ministry of the Solicitor General. Following that he was Liberal caucus critic for the Ministry of the Environment. In 1984, Mr. Elston was chairman of the Ontario

Legislature's standing committee on public accounts, was his party's caucus critic for justice policy and the Ministry of the Attorney General. Also, he was critic for a time, for commercial relations.

He has been involved in commercial and social services activities in his home community. He is a past chairman of the Wingham Recreation Board and Arena Board and served as a director of that town's Businessmen's Association.

Graduate of Western

Mr. Elston graduated with a BA, (Honors, History) from the University of Western Ontario, London, Ont., in 1972. In 1975, he earned a Bachelor of Laws degree from the same institution. He was called to the Bar of Ontario in 1977.



The Hon. Murray Elston, BA, LLB.

SUCCESSFUL CANDIDATES IN ROYAL COLLEGE EXAMINATIONS

Thirty-four dental specialists sat the June, 1985, Royal College of Dentists of Canada Membership Examinations. The successful candidates in each specialty area are listed below.

In Endodontics:

Dr. G.J. Gass, Victoria, B.C.
Dr. T.J. Erskine, Victoria, B.C.
Dr. M.F. Halpenny, Vancouver, B.C.

In Oral and Maxillofacial surgery:

Dr. F. Blondeau, Quebec City
Dr. R.W. Edwards, Calgary, Alberta
Dr. S.G.J. Fitch, Halifax, N.S.
Dr. L.B. Heffez, Chicago, ILL
Dr. R.W. Kreutz, Los Angeles, CAL
Dr. G.B. Wong, Sault Ste. Marie, Ont.

In Oral Pathology:

Dr. S.I. Ahing, Winnipeg, Manitoba
Dr. J.G. Lovas, Halifax, N.S.

In Orthodontics:

Dr. J.I.M. Allan, Kelowna, B.C.
Dr. L.J. Jackman, Cornerbrook, Nfld.
Dr. L.A. Lesniak, St. Albert, Alberta
Dr. C.S. Yue, Calgary, Alberta.

In Paedodontics:

Dr. W.G. Croft, Nanaimo, B.C.
Dr. J.A. Grodecki, Toronto, Ont.
Dr. P. Judd, Toronto, Ont.
Dr. O.O. Osuji, Toronto, Ont.
Dr. D.R. Postello, Nanaimo, B.C.
Dr. J.M. Richman, Vancouver, B.C.
Dr. J. Rukavina, Toronto, Ont.
Dr. R.J. Whyte, Regina, Sask.
Dr. J.R. Wiles, Stouffville, Ont.

In Periodontics:

Dr. S.J. Dixon, Toronto, Ont.
Dr. O. Fardal, London, England
Dr. R.-G. Landry, Ste-Foy, Québec
Dr. J. Larivée, Montréal, Québec
Dr. C. Maisonneuve, Toronto, Ont.
Dr. D. Tisch, Halifax, N.S.

In Prosthodontics:

Dr. L.C.R. St. Pierre, Barrie, Ont.

COMPUTER PROGRAM SPEEDS FORENSIC IDENTIFICATION

A computer program recently developed by a biomaterials researcher in the United States, has made it possible to speed up, to a remarkable degree, the identification of bodies through dental records.

The researcher, a U.S. Army dentist, Col. Lewis Lorton, who says his hobby is "statistics" commented that he was "fiddling" with a database a few years ago which would select specific dental characteristics.

The army showed a keen interest in his discovery and provided the funding to develop it. With some assistance from a computer programmer, Dr. Lorton designed his program, now called the Computer Assisted Postmortem Identification (CAPMI) system.

It will search for characteristics such as missing or filled teeth, in addition to other physical differentiations, such as tattoos or skin color. Dr. Lorton says the other physical information is "usually redundant, because the dental information is so selective."

The inventor is head of the bioengineering branch of the U.S. Army Institute of Dental Research (a part of the Army Medical Research and Development Command) in San Francisco. He said the system can be used in the field with the aid of a 10-pound portable microcomputer.

Until mid-August, he had only once had the opportunity to field test the system. That was last January following the crash of a C-130 cargo aircraft near Honduras. Thirteen bodies were identified from 23 sets of dental records. Dr. Lorton and another dentist each spent three hours to identify the bodies. The computer did the job in seven minutes. That time frame included making the identification on a body they previously couldn't identify positively.

A small computer using this program is capable of sifting through 100 records in one minute and 14 seconds, to find selective information. "How long do you think it would take a dentist to look at 100 records?" Dr. Lorton asked. He explained that each additional 10 records would add only five seconds to the search time.

It is possible to use the program with most small computers, like an IBM personal computer. When it is possible to get access to a larger computer, a larger database can be used.

Seven dental characteristics

When he had analyzed the dental records of about 2,500 servicemen between the ages of 18 and 27, Dr. Lorton noted that the average number of dental characteristics was seven. "If someone has more than four characteristics, then there will be one other person in the group of 2,500 with the same characteristics. If you have five or more, there will be none like you in the group."

His program will select the records most likely to match the description fed into it, and the first name the computer divulges is likely to be the right one. A dentist may then examine the records manually, using x-rays, to confirm for legal purposes whether a correct identification has been made.

In a pilot test of the system at Fort Carson, soldiers who visit the dental clinic are asked to fill out a form listing personal characteristics.

The report of the development of the program in ADA News states that the clinic staff members then fill in the dental information, and the form is ready for reading by an optical scanner. "The big payback is that we (military dentists) will be able to do our job successfully in wartime, and we are also getting good statistical information on the standard of dental care," Dr. Lorton said.

Another application for the system would be in the event of civilian disasters, such as the identification of victims of air crashes. Dr. Lorton expects the military powers-that-be will eventually allow the army to lend his or other military dentists' services, with the 10-pound microcomputer in hand, when civilian disasters strike.

The Canadian Health Economics Research Association will be holding its third conference in Winnipeg, Manitoba, on May 29-30, 1986.

The Association is currently accepting abstracts for the 1986 conference. Entitled "The Third Canadian Conference on Health Economics," the conference is set to deal with all types of issues in the health economics field.

Presenters wishing to participate in the conference, must have abstracts in to the Program Committee by November 1, 1985. Abstracts may be sent to Professor John Horne, Department of Social and Preventive Medicine, College of Medicine, University of Manitoba, 750 Bannatyne Avenue, Winnipeg, Manitoba, R3T 0W3. Those wishing to present papers, must present research which has not been previously published, but presenters do not have to be members of the Association.

Dental practitioners with an interest in the economics of health care, who wish to learn more about the Association, contact Jack Boan, Secretary, CHERA, University of Regina, Department of Economics, Regina, Saskatchewan, S4S 0A2.

L'Ordre des dentistes du Québec has organized a pilot project to provide free dental checkups for the elderly in five large urban centres in that Province. The service is scheduled to begin in April, 1986. Check-ups will be provided for those who are residents of senior citizens' and extended-care institutions in the cities of Montréal, Hull, Québec City, Trois Rivières and Sherbrooke.

The main reason for the testing and diagnostic centres, ODQ President Marc Boucher explained recently, was revelations in a report on geriatric dentistry in Québec. The report indicated a "deplorable" state of dental care among the elderly in that Province.

Dr. Roland Vallée, a former dean of dentistry at Laval University, who has been serving as chairman of the ODQ Ad Hoc Committee on Geriatric Dentistry, has been named Coordinator of the pilot project.

The objective is to reach approximately 38,000 people aged 65 and over.

Municipal water fluoridation had a significant birthday early in the past summer.

Forty years ago, on June 20, 1945, sodium fluoride was introduced to the municipal water supply in Brantford, Ontario.

This was the first recorded use of fluoride in Canada.

The introduction of the fluoride was done without any prior notification to the general public. After a three-month trial period, municipal officials had had no reaction from the public, and not one complaint, according to a commemorative report in a Brantford newspaper. The Public Utilities Commission and the public health officials then brought the matter to the public's attention.

Much discussion, with officials in U.S. communities who were also experimenting, study of scientific reports about the high degree of dental health in communities with natural fluoride in the water supply, and a careful assessment of the results of the three-month trial, resulted in a fully-convinced medical officer of health, the Brant County Dental Society, the Board of Health and the Brantford City Council to make public water supply fluoridation a permanent service for the citizens of Brantford.

Another chain of retail dentistry outlets is on the horizon. They will be located in major Woolco stores across Canada.

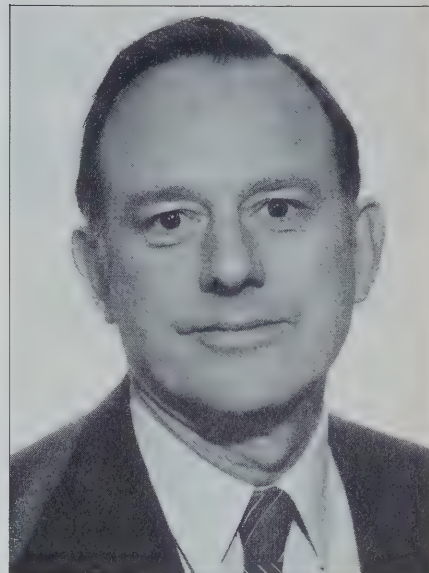
The F.W. Woolworth Co. Ltd., of Toronto recently agreed to license the new chain — Magnum Medical-Dental Offices Inc. — to establish medical and dental clinics in the Woolco stores.

Magnum plans to have 17 of the clinics in operation across Canada by the end of this year. The firm recently conducted a survey to determine which of the 120 Woolco stores would be most suitable locations for either a medical or dental clinic.

The first two of the clinics appear to be those being prepared at two London, Ont., shopping malls. Each Magnum clinic, a report states, will be about 500 square metres in size and have a staff of 10, including three full-time dentists. Officials say the hours will correspond with store hours, and the clinics will be open a minimum of 72 hours a week.

Magnum's President is Dr. Jeffrey D. Swartz, of Mississauga, Ontario, a former practising dentist.

Dr. David G. Gardner, a graduate of the University of Toronto Faculty of Dentistry and Professor of Oral Pathology at the University of Western Ontario's Faculty of Dentistry until 1984, was recently installed as President of the American Academy of



Dr. David G. Gardner

Oral Pathology at its annual meeting in Kansas City.

Dr. Gardner was appointed Professor and Chairman of the Department of Pathology and Radiology at the University of Texas Dental Branch in Houston, in September, 1984.

An official of the Canadian Association of University Teachers has labelled the firing of 12 tenured professors at the University of British Columbia as a "very serious attack" on the tradition of academic tenure.

The 12 professors involved are attached to UBC's dental hygiene, industrial education and communications studies programs.

Because the university may not carry over a deficit from one year to the next, the Senate recommended termination of the programs (including dental hygiene) to help reduce a foreseen deficit of about \$9.34 million for this fiscal year. The reduced operating grant to the university for the 1985-86 fiscal year has been blamed for the dilemma.

Dr. Daniel Birch, UBC's acting vice-president, academic, claims there is "no issue of academic freedom at all." The agreement between the faculty association and the university recognizes the administration's right to terminate faculty appointments in such circumstances, Dr. Birch said.

"As far as I can recall, it's the first time tenured professors have been fired in these numbers in Canada," said Victor W. Sim, associate executive secretary of the Cana-

dian Association of University Teachers. He says he fears the firings will spread to other faculties at UBC, which has been under BC provincial government pressure in recent years, to reduce spending.

An official of the Manitoba Pharmaceutical Association recommends that the amount of prescription drugs be limited to prevent drug wastage and possible abuse.

The dispensing quantity of narcotic analgesics, anabolic steroids, antidepressants, some antibiotics, benzodiazepines and other controlled drugs should be limited to 34 days for each patient, the Association advises.

Many times the large quantities of drugs are wasted or go unused because a patient stops taking them, or medication is changed.

Stewart Wilcox, registrar of the Association, noted that large quantities of prescription drugs given out to a patient at any one time could promote abuse and pose a danger to children.

Tighter controls are necessary he said, because "these are the type of drugs used in suicide attempts and sold (illegally) to others. There's no limit right now except common sense." (He is quoted in *The Journal of the Addiction Research Foundation*).

Dr. Lance M. Rucker of the Faculty of Dentistry, University of British Columbia, was invited to be the major presenter at the Second International Workshop On Performance Simulation and Numerical Terminology In Dental Education, which took place in June, 1985 at the University of Osaka Faculty of Dentistry in Japan. He and Dr. Michael Belenky of the University of Maryland presented a comprehensive summary of research and progress in Performance Simulation teaching in North American dentistry. The Workshop was jointly sponsored by the World Health Organization and the Japanese Dental Education Association.

A missing tooth can ruin romantic opportunities, according to an employee of the French Embassy in Bonn, West Germany.

A dentist in Bonn has been ordered to pay the equivalent of \$2,000 to the embassy official who claimed he was denied any "joy of kissing" following the extraction of the tooth about three years ago, according to a court report.

The embassy official, Denis Ferrand, said that when he does get an opportunity to kiss, he feels "either nothing or only a burning sensation" because, he claims, nerves were damaged during the extraction.

The man's lawyer told the court that the problem had reduced his 51-year-old client's chances of remarrying.



Dr. Geraldine T. Morrow

Dr. Geraldine T. Morrow of Anchorage, Alaska, is the first woman in the 125-year history of the American Dental Association to be elected to the ADA's Board of Trustees.

She is a past president and former executive director of the Alaska Dental Society and served six years as a member of the ADA Council on Dental Health and Health Planning. She was chairman of that Council for one year before being elected as ADA's 11th District trustee. The 11th District includes Alaska, Washington, Oregon, Idaho and Montana. She has also been active in the Academy of General Dentistry and served two terms as a member of the AGD's Council on Constitution, Bylaws and Judicial Procedures. She earned an AGD Fellowship in 1970.

"I certainly hope there would be no doors closed to women in dentistry, and I will work very hard to keep that from occurring," she said.

She says she feels "very strongly that the AGD and ADA should be working together. I feel a deep concern about possible fragmentation at the national level and whatever we can do to prevent such fragmentation, we should do it."

Dental Assistants Recognition Week will be celebrated in the United States from October 20 to the 26th. This event, a news item states, is to acknowledge the contributions dental assistants have made to the dental profession. The week creates an opportunity "for recognition of the commitment and dedication assistants exhibit throughout the year," an American Dental Assistants' Association statement notes. The week of recognition immediately follows the AADA's 61st annual meeting.

Dentifrice manufacturers have been keeping an eye on social customs in far-distant lands.

For generations, people in parts of Africa, Arabia, Iran, Syria and Western India have been using "chewing-sticks."

A common choice for this practice is *Salvador persica* Linn. The plant is chosen because of its anatomical structure as well as its chemical constituents. The woody stem is spongy and easy to crush and the dry pieces of roots soon swell and soften in water.

In those areas, caries incidence has been noted to be low among those who use the sticks, in spite of their high carbohydrate diet.

Now there is a demand on the part of pharmaceutical firms in Europe for extracts of the *Salvador persica* Linn. They wish to use it as a component of toothpaste. They appear to be working on the basis of a report that the sticks contain chemotherapeutic agents which specifically inhibit plaque formation. This hypothesis has been validated, at least in part, by Nigerian researchers who have demonstrated that buffered extracts of the chewing sticks inhibited the growth of oral bacteria on agar culture plates.

Other research has revealed that stick chewing can, through chemical interaction, whiten teeth, protect them from decay and also, stimulate the gingiva and heal spongy and bleeding gums.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on August 30, 1985.

<i>Common Stock Fund</i>	\$99.45969
<i>Fixed Income Fund</i>	\$46.96338
<i>Money Market Fund</i>	\$32.48990
<i>Balanced Fund</i>	\$19.21249

Total assets (market value) of the plan were \$46,425,078 as of August 30, 1985.

The previous month's figures, as of July 26, 1985, stood as follows:

<i>Common Stock Fund</i>	\$98.11523
<i>Fixed Income Fund</i>	\$46.39193
<i>Money Market Fund</i>	\$32.16886
<i>Balanced Fund</i>	\$18.93385

Total assets (market value) of the plan were \$45,783,583 as of July 26, 1985.

Guaranteed Funds Interest Rates: unavailable this month.

For further information write to: Canadian Dental Service Plans Inc., Ste. 600, 2 Lansing Square, Willowdale, Ontario M2J 4Z3 or call the central information services of CDSPI at 1-800-268-5418 (toll free number for Western Canada, Atlantic Canada and Ontario for Code 807 only, 1-800-268-3411 (toll free number for Quebec and Ontario except Code 807), and 497-7117 (Metro Toronto area).

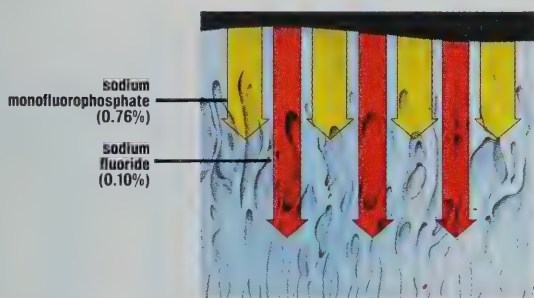
How Colgate's two fluoride formula achieves more complete remineralization resulting in nearly double the cavity protection of a single fluoride formula.*

A major role of fluoride in cavity prevention is to accelerate the process by which demineralized enamel is rebuilt.⁽¹⁻⁴⁾ This reverses white spot lesions which would otherwise become cavities.

Today's Colgate is the first toothpaste with two fluorides—sodium monofluorophosphate at 0.76% and sodium fluoride at 0.10%. Their differing molecular structures mean that these fluorides may work in different ways in tooth enamel. The result at these concentrations, is more complete remineralization of white spot lesions than either can achieve alone.

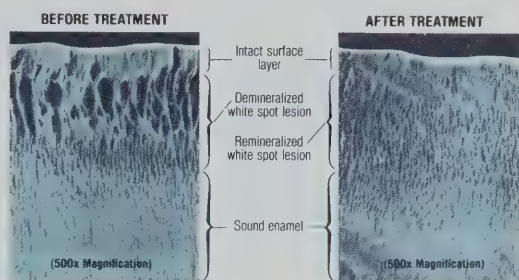
Why these two fluorides remineralize more completely.

It has been postulated that fluorides reach white spot lesions by penetrating enamel through the interprismatic spaces. Sodium monofluorophosphate, being a larger molecule, reacts with enamel primarily at the surface of a white spot lesion. Sodium fluoride, a smaller molecule, penetrates deeper into the lesion.



Working at different levels, the two fluorides may complement each other, enhancing remineralization over a greater area of the lesion than a single fluoride* alone.

This complementary action means more fluoride is available to enhance remineralization over a greater depth of the lesion than is provided by either fluoride alone.^(5,6)



This more complete remineralization has been demonstrated in laboratory studies⁽⁷⁾ and can be seen in the photomicrographs above.

Clinical studies show nearly double the cavity reduction.

Colgate with this two fluoride concept was tested in a three year clinical study.⁽⁸⁾ The results—Colgate's two fluoride formula provided 27.0% reduction in new caries versus 13.8% for the single fluoride positive control* (DMFT).

Conclusion.

Colgate's two fluoride formula provides superior cavity protection to a single fluoride formula*: *Only Today's Colgate has a two fluoride formula.*

When you recommend Colgate you're recommending an innovative product—offering advanced and clinically tested cavity protection.

*Sodium monofluorophosphate (0.76%)

REFERENCES

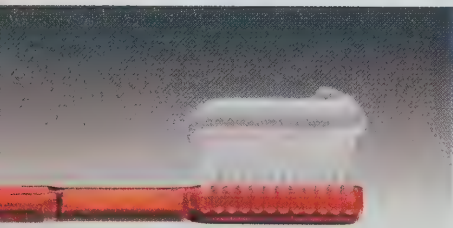
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* Colgate Toothpaste contains sodium monofluorophosphate and sodium fluoride which are, in our opinion, effective decay preventive agents and are of significant value when used in a conscientiously applied program of oral hygiene and regular professional care. Canadian Dental Association

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provide fluoride topically and systemically, to improve fluoride uptake.

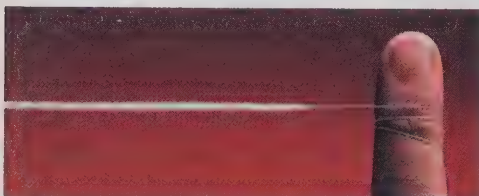


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Book Reviews

Editor's Note: Four of the volumes being reviewed in this issue are in a series, entitled "Biocompatibility of Dental Materials." All volumes were edited by Dennis C. Smith and David F. Williams, and published by CRC Press Inc., Boca Raton, Florida.

BIOCOMPATIBILITY OF DENTAL MATERIALS

Volume I: Characteristics of Dental Tissues and Their Response to Dental Materials
211 p.; \$85 U.S.

Volume II: Biocompatibility of Preventive Dental Materials and Bonding Agents
267 p. \$90 U.S.

These two volumes are part of a set of four volumes on the biocompatibility of dental materials in the oral environment prepared by the same editors. The first volume examines specifically the structure and characteristics of the oral tissues and how these tissues respond to the various materials used in dentistry that come into contact with them. Volume II concerns itself more particularly with the tissue reactions resulting from materials used in preventive techniques and bonding procedures. We thus find chapters in Volume I devoted to the characteristics of enamel, dentine, bone, reaction of the gingival and periodontal tissues to restorative materials, hypersensitivity to dental materials, and the retention of fluoride in the oral environment whilst, in Volume II, such topics as fluorides, fissure sealants, bonding systems in orthodontics, adhesion to teeth, effect of cavity cleansers, etchants, primers and mineralizing solutions, composition and tissue reactions to dental cements and pulp capping materials are featured.

Each chapter was written by different authors and the list of authors is indeed most impressive. The editors approached leading authorities in Europe, America and Australia to write each chapter and hence, each chapter is an independent publication on biocompatibility. The editors have, how-

ever, selected the topics carefully so that these chapters provide a complementary source of instruction and reference on a subject that has been discussed greatly and is certainly current in our profession.

The books are printed on high quality paper, the illustrations are excellent, especially the photos of scanning and transmission electron micrographs and the bibliographies at the end of each chapter are most complete and quite current (1982). The subject matter is examined in great detail by the authors who are generally research scientists and the volumes provide a good source of information for the researcher, the teacher, the graduate student and the clinician interested in this very specific field. The undergraduate student and the practicing dentist looking for a quick answer to a problem might find the subject matter somewhat overwhelming in its depth. These volumes certainly would be a most valued acquisition to any library but their high cost (\$85.00 to \$90.00 each) certainly discourages their presence on many private bookshelves.

The editors are to be congratulated for having put together what is probably the best reference source of material on the subject of biocompatibility of dental materials in the oral environment and serious students of this subject will find these volumes required reading.

*These books were reviewed by
Dr. Ralph Y. Barolet, Professor,
École de médecine dentaire,
Université Laval, Québec, Qc.*

BIOCOMPATIBILITY OF DENTAL MATERIALS

Vol. III, 300 p. \$105 U.S.

No dental office without a copy would be too much, I suppose, but that is what we could hope. This third in a series on Dental Materials deserves wide circulation. Smith and Williams signal a change in the nature of the subject. From the 1920's to the

1970's, the Dental Materials Laboratory echoed with the thuds of testing machines breaking specimens. And subsequently students and dentists were drilled with figures related to the breaking stresses, although few ever saw restorations or dentures disintegrate in other than catastrophes. Even when fractures were a problem, as in a complete upper denture against natural teeth, all this smashing effort told us little. Silicate cement killed pulps, as the emergency department at any Dental School could tell you, but silicate seldom fractured.

This edition on amalgam, silicates, composites, endodontic and impression materials asks and tries to answer the question "What happens in the mouth?" The chemistry used is suited to the question, and the literature surveys in the main appropriate (to the reviewer, sometimes this means he/she is quoted a satisfactory number of times!) Moreover, I found the whole book interesting, which is not what I can say about the traditional approach. I find it unrewarding to read about the laboratory tests of little relevance to clinical matters.

I also prefer the paths of development by the authors to be clear. In this book they provide the clinical history of the product lines, then the relevant chemistry and toxicology leading to the present position. We are thus able to put the latest developments at the end. Recently I attempted to revise my understanding of one bit of dental materials and used another test. I found that analysis done in 1930 or so was the last piece of information on the subject. Those authors used this despite several conferences on the subject matter in the last ten years. As an aside, it is most interesting to observe that most dental materials authors now have heard of dental plaque and gingival irritation.

But we must pick a quarrel with the authors. The large section on dental silicate cement; I, at the moment of writing, called a local Dental Supply House and asked for silicate cement. The sundries desk went into a panic, put me on hold, I listened to the

music — "If you've got the time, we've got the beer" on the telephone, but then the desk came back to say they usually had one bottle in stock, but sorry. This House serves an area of about 1200 dentists. If the descriptions of silicate were a lead up to glass ionomer cements, well and good. But the reader is treated to the usual argument that silicate cement was not toxic etc. etc., despite the fact that 2-3 times a week our emergency section in the 60's dealt with an abscessed incisor which had a silicate cement restoration. Now they never see anything like that, ever. The silicate cement restoration, one way or another, was toxic. I hope such failure to appreciate the clinical outcome of usage of a material is not described as impossible simply because the science of the day had no explanation.

But that is the one error amongst a major renovation of outdated concepts done in this book. The Restorative Chairman's querulous comment that the Dental Materials Department at his school does not understand clinical dentistry will become less frequent as this series generally becomes the standard for modern dental materials.

*This book was reviewed by
Dr. R.H. Roydhouse
Faculty of Dentistry
University of British Columbia*

BIOCOMPATABILITY OF DENTAL MATERIALS

Vol. IV, 274 p. \$90 U.S.

The busy dental practitioner has an increasingly difficult time sorting out the merits of the wide array of dental materials available on the market today. Ideally, all dental materials used in clinical practice would have absolute biocompatibility however, as Smith and Williams point out in their preface to this series, materials often possess varying degrees of biocompatibility.

Volume IV is devoted to a critical review of prosthodontic materials in current use. Each chapter reviews a particular group of materials used in prosthodontic practice. A wide range of materials are reviewed including dental waxes, metal casting alloys, ceramic restorative materials, denture base polymers and resilient lining materials. Also reviewed are dental implant materials, edentulous ridge augmentation materials and materials used for maxillo-facial materials.

One group of materials that surprisingly is not included in volume IV is impression materials. Impression materials are reviewed in volume III of this series. This exclusion may disappoint some who buy volume IV as a comprehensive review of prosthodontic materials.

The material presented in each chapter is generally well organized and presented in a logical fashion. The properties of various materials are generally reviewed in some detail. In most chapters a wide variety of references are critically reviewed to provide both experimental and theoretical information as well as clinical data on the material in question.

Each chapter is written by a different author or authors. Most authors have presented a broad review of the literature available on the particular material in question. However, some authors, such as those chosen to review the dental implant area, have presented a review based largely on North American literature. The chapter on implants does not present a broad review of literature available on dental implants. The literature assessed is almost exclusively North American. A large body of information available from both Europe and Scandinavia is ignored. For example the ten year longitudinal data on osseointegrated titanium implants presented by Branemark in 1977 is not cited in the reference list. Thus the views presented on dental implants present a traditional North American view which may not be shared by all members of the scientific community in light of current literature available.

In general the materials presented in volume IV represent a worthwhile collection of information on prosthodontic materials in current use. The information presented on the biochemical and biomechanical properties of the material is very helpful in sorting out the suitability of the vast array of materials available today. Both the busy clinician and individuals involved in research related to prosthodontic materials should find this book of great value.

*This book was reviewed by
Dr. John Cox, Professor of Prosthodontics,
University of Toronto.*

CYSTS OF THE ORAL REGIONS

Mervyn Shear

*Dental Practitioner Handbook No. 23
Bristol London Boston, Wright PSG,
1983, pp. 218. price: unknown*

The impossible dream of any author foolish enough to attempt the creation of a textbook devoid of humour, historical meandering or other interlude designed to spice up a volume intent on (perish the thought!) disseminating information, is to somehow make that textbook appeal to student, teacher and practitioner alike. "Cysts of the Oral Regions", one of a series of Dental Practitioner Handbooks published by John Wright and Sons has recently appeared in

a second edition, and it has succeeded admirably in attracting all three groups.

There can be little complaint regarding the currency of the information offered. In the seven years since the first edition, Dr. Shear has had opportunity to extensively revise the original text, add 160 new references and generally reassess some older concepts presented earlier as well as adding some new ideas. The soft covered volume itself is sufficiently small to be carried about by the inquisitive student, yet sacrifices little that would make it easy to read or devoid of pertinent information for the busy clinician wishing to review or refresh his knowledge. Pathology students love to memorize lesion classifications, especially if this will help them pass their exams. The classification of cysts listed in the introduction, which the author uses in his own teaching is as simple and straightforward as any I have seen. The remaining sixteen chapters that follow an abbreviated opening historical note adhere to this classification, dealing intelligently with both those cysts that should be considered separately as well as their brethren who can be discussed in groups. The inclusion of a chapter on parasitic cysts is a curiosity that probably has little significance for North American practitioners.

I've always felt that the strength of a pathology textbook lies in its illustrations, perhaps reflecting personal shortcomings in handling the printed word, but nevertheless reinforcing the feelings of a few other people whom I respect as well! The selection of photomicrographs used has been thoughtfully assessed and the employment of illustrations and graphs enhances a text style that is concise yet informative and highly readable. Technically, as in other handbooks in this series, the volume is superb. Low gloss pages cuts down on potential eyestrain, adequately sized type makes the book highly readable and the binding keeps the pages intact even after considerable abuse. Some people may find the perpetual references in the text to previously published findings a little distracting, but a lack in unanimity of agreement in certain lesion pathogenesis makes these references a necessity. In most instances, the lesions are discussed according to their clinical and radiographic findings, histologic features and treatment.

Whether you're learning about them for the first time, trying to stay current while earning a living or dispensing knowledge to minds that probably won't appreciate all that you've done for them until it's too late i.e. after they've graduated, this is a book well worth investing in.

*This book was reviewed by
Dr. J.H. Gryfe,
an oral surgeon in Toronto, Ontario*

CAPITATION

LA RÉMUNÉRATION FORFAITAIRE PAR PERSONNE

1. Amsterdam, J.R. *A comparison of payment mechanisms for financing dental care*. Compendium of Continuing Education in Dentistry, v. 1, no. 2, March-April 1980, pp. 103-109.
2. Barnett, P.R. and Bentley, J.M. *Evaluating capitation finances in a dental practice*. General Dentistry, v. 31, no. 2, March-April 1983, pp. 127-130.
3. Boylan, M.E. *Capitation dental programs: a new slant*. Journal of the Michigan Dental Association, v. 63, no. 6, June 1981, pp. 403-405.
4. Denton, D.R. *The payoffs in prepaid dentistry*. Dental Management, v. 23, no. 11, November 1983, pp. 30-33.
5. Dever, D. *Capitation: another piece in the dental insurance puzzle*. Ohio Dental Journal, v. 57, no. 7, July 1983, pp. 17-22.
6. Friedman, J.W. *The effects of dental insurance on private dental practice*. New Zealand Dental Journal, v. 77, no. 347, January 1981, pp. 14-19.
7. Ghilzon, J., *The wonderful world of dental capitation: Cost-cutting measures seriously jeopardize high dental standards*. Oral Health, v. 74, no. 9, September 1984, pp. 42-43.
8. Gworek, T.J. *Alternate delivery systems. Dental maintenance organizations and capitation plans*. Journal of the Connecticut State Dental Association, v. 58, no. 2, May 1984, pp. 70-71.
9. Milgrom, P. *Capitation in dentistry (letter)*. Journal of the American Dental Association, v. 103, no. 4, October 1981, pp. 544 and 546.
10. Mitchell, C.R. *An alternate dental delivery system (direct benefit or prepaid capitation)*. General Dentistry,

v. 29, no. 5, September-October 1981, pp. 390-394.

11. Olsen, E.D. and Chetelat, G.F. *Dental capitation programs: a comparison of delivery systems*. California Dental Association Journal, v. 7, no. 9, September 1979, pp. 47-50.

12. Rosen, H.M., Sussman, R.A. and Sussman E.J. *The inclusion of capitation reimbursement in solo practice*. Journal of Public Health Dentistry, v. 38, no. 2, Spring 1978, pp. 184-192.

Abstract:

Capitation reimbursement has been an integral part of prepaid group practices in both medicine and dentistry, and claims have been made for its ability to influence the delivery of services favorably. Experts have suggested that if capitation is implemented, more preventive care will be provided, more diagnostic services will be provided, there will be better continuity of care, utilization of high-cost services will be reduced, and clinical outcome will be improved. This study focused on the dominant mode of practice in dentistry, the general, solo practitioner, to determine if these contentions held. A sample of 245 patients whose care was paid for by a capitation mechanism was matched to a sample of 245 similar patients whose care was paid for on a standard fee-for-service basis — all from three dentists' practices. All services in all years of care for each patient were analyzed. It was determined that the rate of restorations was lower, while rates of diagnostic testing and prophylaxis were higher for capitation patients. Continuity was also better under capitation, but rates of extractions were virtually identical for the two groups.

13. Rosenstein, D.I., Cogan, G.L. and Joseph, L.P. *Network capitation practices: a new concept*. Community Dentistry and Oral Epidemiology, v. 8, no. 7, October 1980, pp. 351-354.

Abstract:

The percentage of consumers in the U.S. covered by dental insurance has increased

dramatically over the last 10 years. As dental insurance grows, it is becoming increasingly important to examine the context of dental care payment systems. At present, almost all insurance programs are geared toward the fee-for-service dental insurance plans. A capitation program for dental care, which reimburses dentists a fixed amount per enrolled patient regardless of services rendered, offers many advantages for both consumers and providers and should be available as an option. Network capitation represents a new approach to the payment of dental care. A network capitation program is being developed in the United States and will use an approach involving two contracts, one which will be used with an insurance company, and the second with a network of private practitioners. The insurance company will supply dental practices with dental patients and funds on a capitation basis. Patients will be given the choice of fee-for-service or capitation. Network capitation allows fee-for-service solo or group practitioners to incorporate capitation patients into their practice.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982, and is at the disposal of all members.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherche bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982, ce système est à la disposition de tous les membres.

AIDS UPDATE

DERNIERS TITRES PARUS SUR LE SIDA

1. *AIDS: information for dentists*. New York State Department of Health. New York Journal of Dentistry, v. 54, no. 6, September-October 1984, p. 256.
2. Davis, D.R. and Knapp, J.F. *The significance of AIDS to dentists and dental practice*. Journal of Prosthetic Dentistry, v. 52, no. 5, November 1984, pp. 736-738.
3. Evans, B.E. *Acquired Immune Deficiency Syndrome: Dental considerations*. New York State Dental Journal, v. 49, no. 9, November 1983, pp. 649-652.
4. Eversole, L.R. and others. *Oral Kaposi's sarcoma associated with acquired immunodeficiency syndrome among homosexual males*. Journal of the American Dental Association, v. 107, no. 2, August 1983, pp. 248-253.

Abstract:

Clinical disease states encountered in the acquired immunodeficiency syndrome (AIDS) have been reviewed with an emphasis on oral Kaposi's sarcoma. The disease is reaching epidemic proportions among homosexual males and is characterized by onset of fever, malaise, diarrhea, and lymphadenopathy. Subsequent to these initial non-specific signs and symptoms, patients develop a variety of opportunistic infections or Kaposi's sarcoma (or both). The oral lesions of Kaposi's sarcoma are characterized by red, blue, or purple plaques or nodules encountered primarily, yet not exclusively on the palate. Other oral manifestations of AIDS include candidiasis

and herpetic stomatitis. Epidemiologic studies suggest the probability of a transmissible agent, perhaps a virus. It is recommended that dental care should be rendered to these patients, using mask and gloves with autoclave sterilization of all instruments.

5. Fair, J.L., Crawford, J.J. and Forbes, E.A. *AIDS: a new concern in dentistry*. Dental Hygiene, v. 58, no. 11, November 1984, pp. 502-506.
6. Hardie, J. *AIDS and its significance to dentistry*. Canadian Dental Association Journal, v. 49, no. 8, August 1983, pp. 565-569.
7. Hartel, W. and Stock, D. *AIDS and dentistry: clarifying the connection*. ASDA News, v. 14, no. 1, January 1984, pp. 1 and 4.
8. Hurlen, B. and Gerner, N.W. *Acquired Immune Deficiency Syndrome (AIDS) — complications in dental treatment. Report of a case*. International Journal of Oral Surgery, v. 13, no. 2, April 1984, pp. 148-150.

Abstract:

Acquired immune deficiency syndrome (AIDS) is a new disease which has recently alerted the medical world. AIDS may also concern dental practitioners and oral surgeons who may be the first to suspect impairment of immunity in patients presenting opportunistic oral infections, such as encountered in a 27 year-old man developing AIDS, could also be a sign of immunodepression. Epidemiological features of AIDS indicate transmissibility, and interim recommendations for prevention of spread correspond to the measures appropriate for Hepatitis B.

9. Lozada-Nur, F. and others. *The diagnosis of AIDS and AIDS related complex in*

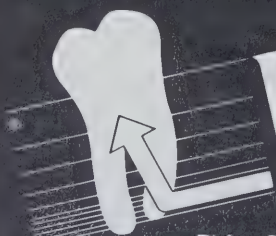
the dental office: findings of 171 homosexual males. California Dental Association Journal, v. 12, no. 6, June 1984, pp. 21-25.

10. Molinari, J.A., Merchant, V.A. and Barrett, E.D. *Acquired Immune Deficiency Syndrome (AIDS): Disease manifestations and dental management*. Journal of the Michigan Dental Association, v. 66, no. 3, March 1984, pp. 113-120.
11. Moskowitz, E.M. *The treatment of dental patients with Acquired Immune Deficiency Syndrome (AIDS)*. New York Journal of Dentistry, v. 54, no. 3, March 1984, pp. 119-120.
12. Roberts, M.W. and Henderson, D.K. *Dental considerations in Acquired Immune Deficiency Syndrome: AIDS*. General Dentistry, v. 31, no. 6, November-December 1983, pp. 444-447.
13. Silverman, S., jr. and others. *Current assessment; dental risks and guidelines in the AIDS epidemic*. California Dental Association Journal, v. 11, no. 10, October 1983, pp. 7-10.
14. Smith, B.W., Dennison, D.K. and Newland, J.R. *Acquired Immune Deficiency Syndrome: implications for the practicing dentist*. Texas Dental Journal, v. 101, no. 9, September 1984, pp. 6-9.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

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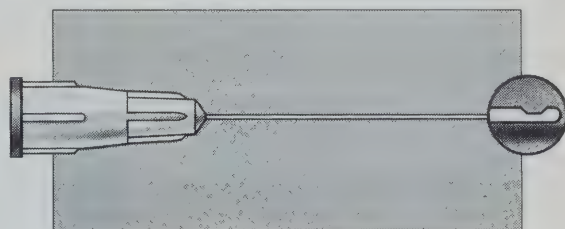
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DR. BRUCE HORD PASSES AWAY IN TORONTO

Dr. Bruce Hord, formerly chairman of the Department of Restorative Dentistry, Faculty of Dentistry, University of Toronto, passed away in Toronto in July. He was 60.

Dr. Hord was known as a pioneer in dental education, fostering programs for dental hygienists and dental nurses in community colleges across Ontario. He was also for many years, administrator of the Dental Aptitude Test for the University of Toronto. He was also a longtime chalk grader on CDA's Dental Admissions Test Committee.

A graduate from the University of Toronto, Faculty of Dentistry in 1947, he went into private practice in Toronto until 1963. During this period he also taught clinical and operative dentistry at the University. In 1968, he became a full-time member of the dental faculty. From 1970 to 1974 he served as assistant dean for student affairs. In 1975 he was made chairman of the Department of Restorative Dentistry, where he served until last year when he was forced to resign because of poor health.

Dr. Hord also carried his interest in education beyond the University setting. He was for many years an advisor to both the governments of Ontario and Saskatchewan on various aspects of training dental assistants.

In 1976, he was made a Fellow of the International College of Dentists.

He is survived by his wife and three sons.

OBITUARIES/NÉCROLOGIES

BOYD, J.W.: Dr. J.W. Boyd, a Life Member of the Canadian Dental Association, was born in 1901. He was a graduate of the University of Toronto in 1925. He was a resident of Kitchener, Ontario, at the time of his death.

JOHNSTON, G.: A resident of Aylmer, Ontario, at the time of his death, Dr. Johnston graduated from Royal College of Dental Surgeons, School of Dentistry, in Toronto in 1921.

JONES, J.H.: Born in 1921, Dr. Jones was a graduate of the University of Alberta in 1945. He practiced in Calgary and was a resident of Calgary, Alberta, at the time of his death.

LEFRANÇOIS, J.-A.: Né en 1900 et diplômé de l'Université de Montréal, le Dr Lefrançois habitait à ville St-Laurent (Québec) au moment de son décès.

MACLACHLAN, L.: Dr. MacLachlan, an Ottawa dentist, was awarded posthumously an honorary membership in the Canadian Dental Association at the Association's convention in September. A native of Carp, Ontario, Dr. MacLachlan practiced in Ottawa for more than 40 years. He was a graduate of the Royal College of Dental Surgeons in Toronto in 1920, and a found-

ing executive of the Canadian Dental Association. He was a resident of Ottawa at the time of his death. (For a complete review of Dr. MacLachlan's life and career see JCDA, September 1985.)

MARTIN, E.E.: A graduate of North Pacific College, Dr. Martin was born in 1909. He graduated in 1932, and practiced in Vancouver from the time of graduation to the time of his death.

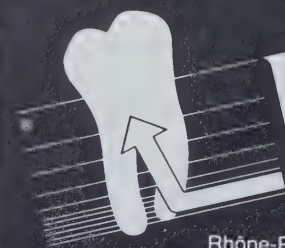
RIDLEY, C.H.: Born in 1899, Dr. Ridley was a graduate in 1926 of North Pacific College. He practiced dentistry in Vancouver. He was a resident of Vancouver at the time of his death.

WEINER, J.H.: A Life Member of the Canadian Dental Association, Dr. Weiner was a graduate of McGill University in 1921. He was born in 1900 and was a resident of Montréal at the time of his death.

CORRECTION

In the July 1985 issue of JCDA, the obituary of Dr. J.C. Ward, was incorrect. Dr. Ward, who was born in 1896, graduated from the Royal College of Dental Surgeons in Toronto in 1923. He was a resident of Edmonton, Alberta, at the time of his death.

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Specialty Features

CAPITATION DENTISTRY

IS IT REALLY AN ALTERNATIVE TO SOLO PRACTICE?

Heather Lang-Runtz*

In this first of a two-part series, Ms. Lang-Runtz provides a general overview of capitation dentistry: its history and development, what it involves, its disadvantages and advantages. The second part will deal with the Canadian situation and the views of dental associations, including the Canadian Dental Association, as well as what Associations are considering doing about the growing trend towards capitation dentistry.

World economies have been based on the traditional fee-for-service concept since silver became a medium of exchange. Before this period, man essentially bought services and goods with other services and goods. The system was the same, only the method of payment was different.

Material items, food, clothing, and property — all were paid for upon possession. Even medical and dental care was paid for at the time that care was administered.

Since the Second World War, however, the traditional fee-for-service concept that has served as the backbone of at least the dental community, has been called into question. Potential patients, and even those who regularly see a dentist, are being wooed by dental groups advocating capitation dentistry.

An alternative method of paying for dental care, capitation dentistry is a system in which the contracting dentist is compensated at a fixed per capita rate in return for agreeing to provide *specific*, predetermined, *appropriate* and *necessary* dental services as needed to eligible subscribers for a speci-



fied period of time. Payment is based on the number of persons eligible for treatment; it does not matter to the dentist if the eligibles who essentially are paying for the service do not use it.

Capitation dentistry — also known as prepaid dentistry — is a radical departure from conventional fee-for-service dentistry. With fee-for-service dentistry, a dentist performs a service and attaches a fee to it. In capitation dentistry, the agency pays a sum for "the patient's needs". It is not necessary for the patient to come in. The dentist still collects the agreed upon fee every month, as stipulated in the prepayment plan (or contract). The dentist is also responsible for the patient's needs even if the sum provided is not sufficient to cover

*Heather Lang-Runtz is an Ottawa freelance writer and formerly the Associate Editor of the Journal of the Canadian Dental Association.

the cost of the immediate needs. Obviously, it is in the dentist's best interests to get the patient healthy and ensure he/she stays that way.

Capitation proponent

One of capitation dentistry's greatest proponents could well be Dr. Ralph Heiser, a Minneapolis, Minnesota, dentist who develops and markets capitation prepaid dental plans. His philosophy, as quoted by Penny Elliott in her article "Dentist-Entrepreneur Creates Expansive Capitation Empire" (*Dental Economics*, September 1980), follows:

"All I'm doing in the dental profession is looking for new ways to fill the unmet needs — and there's a big vacuum out there of unmet needs. I don't really believe there's a surplus of dentists; I believe there's a shortage of patients. There are not enough dentists to fill all the needs that are out there if the price was right or if the accessibility was right. With fee-for-service dentistry, you perform a service and attach a fee to it. That service is fine as long as there's a patient sitting in the chair; but, if there's no patient sitting in the chair, the fees don't mean a thing."

Obviously, marketing the service is essential to a healthy capitation business because the dentist is selling an efficient, productive unit of time. The agency or individual promoting capitation goes out and tries to convince employers, associations and unions to enter into a prepaid dental plan. The dentist who gets involved must see to it that every bit of time in the dental office is used most efficiently.

Flow patterns in treatment planning have been devised to help the dentist evaluate a

patient and treat the priority cases. Priority is based upon preventive dentistry concepts. Basic counselling, cleaning and emergency relief are provided for in Phase 1; Phase 2 involves saving as many teeth as possible; Phase 3 includes space maintenance for children and crowns; and Phase 4, which is only provided for patients who demonstrate meticulous home care, includes partial dentures, orthodontics and periodontal surgery. A time factor is attached to each treatment phase.

The incentive is "prudent dentistry," to quote Dr. Heiser. Critics are concerned that "prudent dentistry" is a euphemism for "limited patient care in response to limited funding".

Capitation dentistry has been around for years. But its impact was not seriously considered by the dental profession until the late '60s and early '70s when capitation groups mushroomed, particularly in the United States.

Several economic factors

The sudden onslaught of capitation groups across North America into most of the larger industrial centres can be attributed to several economic factors. Populations

have stabilized and the competition for fewer dollars has increased. In addition, there is an overabundance of new dental graduates who, most often, flock to the urban areas in search of employment opportunities. This has itself created a maldistribution of dentists.

These facts are very much a reality in the 1980s, and the dental profession is currently reviewing the implications of capitation dentistry for the profession and for patient care.

The story of capitation dentistry really originated in 1953 when a U.S. dentist, Dr. Max Schoen, proposed the establishment of a prepaid group dental program for the United States-based International Longshoremen's and Warehousemen's Union. A feasibility study was conducted the following year, and the union gained a dental benefit plan after collectively bargaining with the Pacific Maritime Association. This dental plan — which provided comprehensive care for children of the union members on the west coast up to 15 years of age — was the first plan of national significance that used the facilities of a private group and was a pioneer in the field of prepaid dental care.

Since the first regular office was opened in 1955, Schoen's group practice has mushroomed through the years. It now embraces several branch offices and a staff of at least six partners, several associate dentists and umpteen hygienists, dental assistants and office workers. The staff draws a fixed salary, which is based on training, experience, seniority and prevailing income levels in the community.

In the beginning — despite the success of Schoen's practice — capitation dentistry as a group practice developed slowly. By 1958, 2.6 per cent of U.S. dentists were involved in capitation group arrangements. This increased only to 4.6 per cent by 1967. Primarily a post World War II phenomenon — over 90 per cent of capitation group practices were formed since 1945 — the concept has only recently attracted increased attention.

Independent fee-for-service practice is still the norm across North America. But current economic and social trends, as well as the undeniable fact that there are some people out there who do not visit the dentist regularly, are helping to call this traditional view of the solo practitioner into question.

The so-called "new wave" of dentists

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point to the advantages of capitation dentistry. But for every advantage, opponents can present a disadvantage.

Proponents of capitation dentistry say that it attracts patients who may never have received treatment if the service had not been provided by the employer or union. Therefore, they say, it has the potential for achieving an oral health status for defined population groups — more so than the traditional approach.

Opponents reply that capitation is based upon a questionable foundation. Capitation is unlike insurance, they say; insurance plans also make it possible to extend dental care, but they are based upon actuarial studies which ensure an adequate financial basis for potential needs.

Opponents add that dentists who are involved in capitation dentistry are often scattered throughout a region. This poor access to a dentist discourages patient care.

Dentists in the capitation network, claim its proponents, can leave the office for vacation, sickness or meetings and not have their practice interrupted. The patient is merely treated by another dentist in the same network.

This type of arrangement, say the oppo-

nents, disrupts, and even damages, the dentist/patient relationship. The dentist will not adequately understand the patient's needs if that patient is shunted from one dentist to another.

Proponents point to the elimination of conflict of interest as one of the main advantages to capitation dentistry. Because dentists involved in a capitation network receive a monthly salary, which does not fluctuate, they are not faced with the temptation to diagnose and treat excessively. Under the traditional fee-for-service, these same proponents argue that dentists' diagnoses are ultimately influenced by income needs.

The opponents, on the other hand, say that capitation dentists are encouraged to provide minimal treatment because they operate on the premise that the less treatment provided, the less overhead and the more profit. Thus, a dentist's judgement of the patient's true oral needs may be compromised.

'Endless' claim forms

Proponents also say that the endless claim forms that are part and parcel of fee-for-service dentistry are eliminated.

Opponents will tell you, however, that it

still takes a lot of paperwork to come up with a premium fee acceptable to both parties. In fact, many capitation agencies are now being asked to furnish data so that underwriting agencies and spokespersons can monitor performance.

Another argument given in favour of capitation schemes is that the cost of dental services to the patient is less. Therefore, more patients will be encouraged to seek the services of a dentist.

The flip side of the coin in this claim, opponents say, is that a surcharge or patient co-payment may be instituted for more extensive treatment. Thus, in many cases the amount paid by the patient is almost as much as fee-for-service charges.

Financial risks

Although capitation advocates can point to some advantages for the dentist, there are still many inherent risks. Dentists considering switching over to a capitation system must remember that the financial risk is always borne by the dentist-provider. At the point a contract is signed with a company, the dentist takes the risk of providing care to the enrollees in the plan at a loss during the early stages of the contract — just

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as entrepreneurs take a risk when they enter into a new business venture. For this reason, even the advocates admit, dentists should retain a healthy ratio of their private fee-for-service practice. It is also advisable for a dentist to enter into a group practice so that the risk is spread and productivity is maximized. Proof that the risk is real may be seen in the fact that the number of bankruptcies among capitation dental networks is excessively high. For every success story, there are many failures.

The fact that a capitation program must be under-utilized to be successful, calls into question the basic premise upon which dental care is based — that the dentist is here to serve the needs of the entire population, not just part of it. Does capitation provide dental care to more people? Can a system which relies on under-utilization serve the needs of the population?

Chris Corby of *Dental Economics* aptly says in his March 1979 article "Capitation — Is it a threat?":

"The ethical, responsible dentist will be no more threatened by capitation than by 'advertising' dentistry. Programs that compete on price alone will fall by the wayside or become insignificant, since price is only one factor used in determining value — quality and service

must also be considered . . . The demand for true value is a timeless demand."

If the patient is an adequate judge of the quality of dental care, then Mr. Corby is right. The dental profession, however, is not sure that this is the case and is still making its own judgement on the implications of capitation dentistry for the quality of patient care.

Dental Service Plan: a dental prepayment plan that ensures the provision of specified dental services to subscribers

Global Budget (Ontario): any payment method other than fee for service

Health Maintenance Organization (HMO): an organized system of health care that accepts the responsibility to provide and ensure the delivery of an agreed-upon set of comprehensive health maintenance and treatment services for a voluntarily-enrolled group of persons in a geographic area and is reimbursed through a pre-negotiated and fixed periodic payment made by or on behalf of each person or family unit enrolled in the plan.

Health Service Organization (HSO): an Ontario system of health care organized to provide illness prevention services, as well

as diagnostic and therapeutic medical and other health services, to a population of OHIP-insured persons enrolled voluntarily in the organization. A per capita rate is paid to the HSO for these services on behalf of the eligible enrollees, by the Ontario Ministry of Health.

Prepaid Dental Program: a program that finances the cost of dental care in advance of receipt of services through a third party.

Prepaid Group Practice: if the services provided in a closed panel are from a group practice facility and are prepaid by an agency.

Prepayment: a prepaid dental plan (often mistakenly called a 'dental insurance plan'). Dental disease is universal, so it is certain that most subscribers will demand reimbursement for dental expenses during any given year. Thus, dental coverage is cost averaging based on reimbursement of all claimants from pooled monthly premiums. Cost averaging is prepayment, not insurance.

Third Party: the party to a dental prepayment contract that may collect premiums, assume financial risks, pay claims, and/or provide administration services.

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THE HIRING, TRAINING AND FIRING OF OFFICE STAFF

Jim Garner

The hiring, training and (if unavoidable) firing of staff has become almost a science in recent years. How do you measure a person's potential to do the job you want done? Should you administer a battery of tests — or even hire an expert to do so for you? Or perhaps use one of the agency services — after all, they claim to be the experts?

Personnel selection may indeed be treated as a science by governments and large corporations. But it's an inexact science. The big employers make their mistakes too — if William Shakespeare applied for a government job as a speechwriter, the personnel department would probably look at his high-school education and screen him out as unqualified. So the do-it-yourself efforts of a one- or two-person dental practice to find a good receptionist-bookkeeper stand an excellent chance of success, given a methodical, commonsense approach.

Let us imagine, then, Dr. W. Fingers, a solo dental practitioner, who has decided his present receptionist really won't do. For the third Monday running she's arrived late, and she's been irritable with the patients — as she often is. Fingers has spoken to her before about this, but it hasn't made much difference. His initial angry reaction this morning was to fire her on the spot, but he keeps his cool and, after his hygienist and the last patients have left, he calls the erring employee into the office. He doesn't beat about the bush. As kindly as possible, but firmly, and finally, he explains she is being let go, giving his reasons. By doing this at the end of the business day, he has kept the meeting confidential. To make the firing as smooth as possible, he follows other guidelines:

- He tactfully points out that they can-

not work together smoothly and that she will be happier working for somebody else.

- He avoids confrontation by not arguing whether or not she has performed satisfactorily in general. He agrees, if necessary, that he might have spent more time training her.

- He allows her to express her feelings. The interview is ended by assuring her the meeting will remain confidential.

- She will be paid in full for the notice period as required by law. He asks her to leave immediately. A disgruntled employee hanging around for a week or two can do nothing but harm to the practice.

Personnel counsellors are divided as to whether an employee who is fired should be offered the chance to resign. A dismissed employee is entitled to collect Unemployment Insurance within two weeks, whereas one who resigns is subject to a six-week penalty. However, the penalty is not usually applied when the resignation is demanded. There is little harm in allowing an unsatisfactory employee to resign, providing the employer does not subsequently become a party to any falsification of the circumstances. And an employee who resigns, even under some pressure, cannot as easily sue for wrongful dismissal, which is getting to be quite a consideration these days.

Finding a replacement

Dr. Fingers now has the problem of finding a replacement. He is looking for somebody who can receive the public, make the appointments and handle the correspondence and simple bookkeeping. But many of the following points are equally applicable to a search for a more highly skilled person, such as a hygienist. Fingers can get a temporary receptionist from one of the several agencies in town, while he looks for a per-

manent new one. He does have a hygienist but finds it useful if the receptionist can fill in on some of the other duties. He is realistically aware that he may have to teach these duties.

His first step, obviously, to finding a new employee of any kind is to let it be known there is a job available. There are several ways to do this:

Placing a classified ad in the local newspaper is the most popular and, probably, the most effective method. The ad should state the duties to be carried out and the qualifications needed, such as typing speeds, elementary bookkeeping and ability to deal pleasantly with the public. If the job had been for a higher-level position, the appropriate certification should have been specified. Including the salary range in the ad is a time-saver. There is nothing so frustrating as interviewing an apparently suitable applicant only to discover after 20 minutes she isn't willing to work for the salary the employer is willing to pay. Using a box number has its pros and cons. Some guides on job-seeking urge their readers not to deal with employers who are not willing to reveal their identities; on the other hand, a dentist who advertises a job under his own name can expect some nuisance telephone calls and even personal visits.

Inform colleagues

Another popular method is just to let everybody know you're seeking help. It's cheap and often effective. Tell your friends, colleagues, the local pharmacist, even the local minister. The pharmaceutical and other salesmen who call are worth telling, because they get around all the dental and medical offices and know which staff members are looking for a different job.

If you belong to a local professional soci-

INTERVIEW QUESTIONS

1. Why do you want this job?
2. Why do you think you are qualified?
3. How did you come to leave your last job?
4. Did you function well in your last job, and if so, in what way?
5. What was your best achievement?
6. What did you like best about your last job?
7. What did you like least about it?
8. What courses have you taken or what reading have you done to improve your skills?
9. In your last job, did you introduce any improvements?
10. At school, were you more interested in classwork or extracurricular activities?
11. Do you like meeting new people?
12. Would you rather work alone or with a group?
13. Do you lack self-confidence?
14. Are you good at remembering names and faces?
15. What do you like to do in your spare time?
16. Do you smoke?
17. Would a no-smoking rule make you happier or uncomfortable?
18. What kind of people do you find yourself not liking?
19. We sometimes have to work under pressure — how would you react to that?
20. Do you have any health problems?
21. Some of my colleagues complain about immature staff — how do you rate yourself?
22. What did you earn in your previous job?
23. Some bosses are hard to get along with — how was your last employer?
24. Sometimes we have to work late — how much will that upset your personal life?
25. How long do you plan to continue working?
26. What are your family responsibilities?
27. What type of work does your spouse do?
28. Have you arranged child care during your working hours?
29. What questions do you have about this job?

**Note that question 24 to 28 may infringe human rights laws, unless the applicant has first indicated marital status or parenthood.*

ety that has a newsletter, you could perhaps use that. The dental receptionists read it also. In a large city the society might even keep files of people looking for jobs in dental offices. Nor should you overlook organizations of your fellow professionals — physicians, chiropractors, optometrists etc. Depending on the kind of job you want to fill, somebody with experience in a parallel health-care practice could adapt well to dental practice.

Candidates can be found in high schools, business schools and community colleges. Many of these have either vocational departments or placement services that you can phone. Such candidates will have the kind of training you are looking for and will undoubtedly be eager to learn. And their lack of experience at least means they have no ingrained bad professional habits!

Actually to approach with a job offer a receptionist employed by a colleague would be unprofessional. But it's different when the initial approach is made by the receptionist, who presumably is dissatisfied and will be changing jobs anyway. The methods described here will reach such prospects, as also will announcements on the staff noticeboards of local hospitals.

Finally, if the dentist, as in Dr. Fingers' case, is using a temporary from an agency, he can be sure the agency will suggest a few people for the vacancy. A good agency will check its files for prospects who match the position and salary and will be able to supply personal histories, test results and interview reports. The agency's services will save the employer the expense of advertising and the time needed to initially screen all the applicants. For this, the charge is four to six weeks' salary at the rate to be paid. Many agencies guarantee their candidates — that is, if the person chosen leaves within a stated period, often six months, the same services are supplied again without further charge.

After reviewing these options, Dr. Fingers decided to advertise in the local newspaper, using a box number. The newspaper salesperson on the phone tried to sell him on a large, semi-display ad, but Dr. Fingers declined, partly because the expense wasn't justified, but also because such ads are usually aimed at high-level professional and executive staff rather than the type of worker he wanted. So he took a regular classified ad at a few cents a word and got 28 replies. He took his time and screened them carefully over a weekend, because he realized that finding the right person was important to the practice and would save him a lot of time in the long run.

Written applications

One reason that reviewing written applications is important is that it's often the

most objective step in the process. In a face-to-face interview, other factors may intrude. The interviewer may have had a bad or good experience with somebody else who has the same hairstyle, or the applicant may put on an atypical performance. Dr. Fingers rated each written application on seven criteria: its general appearance, neatness, spelling and organization and on the applicant's levels of experience and education. He assigned one point for average, zero for below average and two points for above average. He thus narrowed down his search to four candidates with scores of 10 or better.

Next he telephoned each of the four, and while arranging an interview he did a similar rating on the applicant's telephone manner, reasoning to himself that that, too, is important in a dental practice. It would have been a mistake for him to have his temporary help call the applicants. The rating was on telephone personality, vocabulary, fluency, pitch and clarity. Two applicants scored eight, one seven and one five.

To set what he thought was the right atmosphere, Dr. Fingers met the applicants after office hours, so there was no pressure of duties on either party. One applicant had difficulty making an evening appointment, so he saw her Saturday morning. To each he offered coffee or tea. He sat comfortably opposite in an armchair, rather than behind his desk.

To prepare for each interview, Dr. Fingers wrote out a list of questions. It seemed to him he would get a better comparison of the candidates by sticking to the same list for all, although the questions were designed to encourage the applicants to talk about themselves. The list is found in **Fig. 1**. Note that some of the items need a little tact; employers may not ask about an applicant's sex, marital status, race, creed, colour, age, nationality, ancestry or place of origin. (As Dr. Fingers' newspaper salesperson explained, his ad couldn't imply any preference on these grounds either.)

He concluded three of the interviews by asking for three letters of recommendation, one of which should be from a former employer. Some authorities suggest asking for names so the employer can write himself. He decided one of the applicants was unsuitable and didn't ask for references. Immediately after each applicant had left, Dr. Fingers completed the interview rating form (**Fig. 2**).

He then studied the forms and his telephone rating. It seemed obvious that two of the applicants were well suited for the job. Both were nicely turned out, poised, well-spoken and pleasant. When the recommendations arrived, a former employer had nothing but praise for one, Helen. So Helen it was to be.

Fig. 1 — Questions to ask

But wait! He remembered the receptionist he had only just fired. She too had had an excellent recommendation. Also he'd heard stories about departing employees who'd been allowed to write their own testimonials. And an acquaintance at his club had only recently boasted about getting rid of an unwanted employee by giving him a glowing testimonial for a prospective new employer. Fingers decided to telephone.

Cost justified

Helen, it turned out, had previously been working in Calgary, 2,000 km away. Dr. Fingers hesitated a moment, then realized how absurd it was to worry about a \$15 call when a mistake in hiring would probably cost him hundreds of dollars. He called and asked his Calgary colleague specific questions about punctuality, efficiency, honesty and willingness. Was she cheerful? Innovative? Did she get on with other staff people? Did the patients like her? Would the colleague hire her again? What were her faults? He noted whether there were any pregnant pauses between question and answer.

Dr. Fingers was quite satisfied with the answers. Even so, he might have called a second previous employer, but Helen had had only the one job in five years.

So he offered the job to Helen. After all that trouble, he should now have the right person, but one can still make mistakes. Helen began on a three-month probationary period, during which either party can terminate the association without obligation. As it happened, she was a treasure. Dr. Fingers found his office pleasant to work in, his patients pleased. The workload has increased a good deal, but it's not noticeably more onerous. Fingers was smart about Helen; he doesn't want her to get dissatisfied and take her considerable talents elsewhere, so he treats her with consideration and pays her something above average. Because above-average is what his practice has become.

Mr. Garner is a free-lance writer based in Ottawa, Ont. He has written extensively for public health organization publications.

PERSONAL INTERVIEW RATING FORM

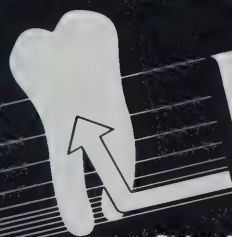
Name of applicant

	Above average ⁽²⁾	Average ⁽¹⁾	Below average ⁽⁰⁾
Appearance			
Height and weight	—	—	—
Grooming	—	—	—
Dress	—	—	—
Mannerisms	—	—	—
Poise	—	—	—
Experience			
General	—	—	—
Specific	—	—	—
Education			
Formal	—	—	—
Reading and short courses	—	—	—
Personality			
Attitude	—	—	—
Maturity	—	—	—
Emotional adjustment	—	—	—
Team spirit	—	—	—
Tact	—	—	—
Motivation	—	—	—
Adaptability	—	—	—
Self-confidence	—	—	—
Self discipline	—	—	—
Forcefulness	—	—	—
Alertness	—	—	—
Other information*			
Honesty	—	—	—
Punctuality	—	—	—
Industriousness	—	—	—
Conscientiousness	—	—	—

*Other information should be obtained from third parties.

Fig. 2 — Personal interview rating form.

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fully documented (800 words or less), are welcome for publication at the discretion of the editor.

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2. Kilpatrick, H.C. Work simplification in dentistry, ed. 2. Philadelphia, Saunders, 1964.13

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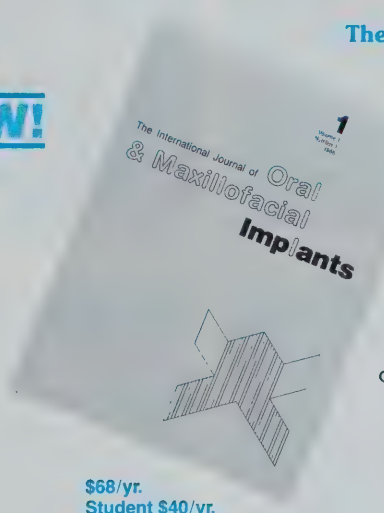
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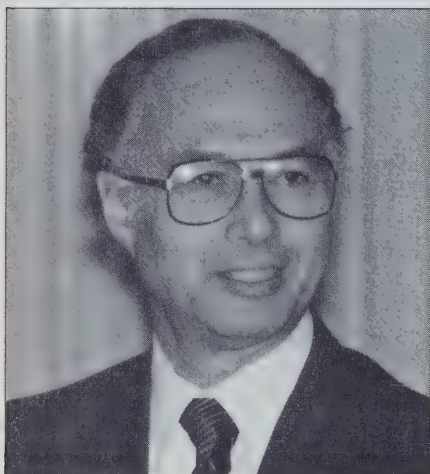
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"THIS OFFICE WILL BE CLOSED..."

Marvin Kay, MD



Over the years, medals have been used as a medium to honor men and women for their achievements or to commemorate an historic occasion or a notable event. During the past two decades, the author has been collecting coins and medals that pertain to the various health-related fields — medicine, dentistry, pharmacy, hospitals and nursing. This article discusses several medals, plus one bank note, from the author's collection, that relate to dentistry.

First medal

The title for this article comes from the *Journal of the Ontario Dental Association*, Vol. 7, p. 48, August, 1932. That particular page of the *Journal* has a display sign. Dentists were urged to exhibit the sign to inform patients that their dentist was in attendance at the Joint Convention of the British, Canadian and Ontario Dental Associations. This was the first (and only) British Empire Dental Convention. It took place in Toronto, at the Royal York Hotel, and a souvenir medal was issued to commemorate the event. (Fig. 1)

The medal is about 30 × 38 mm and is enamel on gold-coloured metal. Around the margin are maple leaves, with the head of a lion above. The wording is "British, Canadian, Ontario Joint Convention/1932." There is the British flag, the Ontario crest and the Canadian red ensign. Below, "Dental Associations". This medal is "uniface", that is, the back is blank.

As an anesthetist, I am aware of the contribution to my specialty by William Thomas Green Morton. Morton was born in Charlton, Massachusetts on August 9, 1819. He studied dentistry at the College of Dental Surgery in Baltimore, Maryland, and he practised in Farmington, Connecticut, and Boston. In 1844, Morton enrolled in the Harvard Medical School, but he never graduated. Morton's contribution to anesthesia was his public demonstration of the use of ether as a general anesthetic agent. It was on October 16, 1846, in what is now known as the "Ether Dome" of the Massachusetts General Hospital, where Morton used ether to anesthetize a patient for surgical excision of a tumour on the neck of a young man. Morton was enshrined in the Hall of Fame for Great Americans, as is shown on a medal issued for this occasion.

The medal was issued in both bronze and silver, each one being 44 mm in diameter. The obverse (Fig. 2) shows a portrait of Morton to the right. To the left is the Staff of Aesculapius with the entwined snake, and a flask emitting the ether vapours. Above are the words, "The Hall of Fame for Great Americans at New York University". Below, "William Thomas Green Morton", and his dates, "1819-1868."

The reverse (Fig. 3) shows a sleeping male figure, enveloped in ether vapours. To the left are the letters R-O-R, a representation of the chemical structure of di-ethyl ether. The medal was sculpted by the famous American sculptor, Abram Belskie.



Figure 1

Another medal honouring Morton was issued by Presidential Art Medals in its "Great Men of Medicine" series. The reverse of this medal (Fig. 4) shows Morton anesthetizing a patient while the surgeon, Dr. John Collins Warren, is standing by. Most anesthetists today would be upset by the fact that the patient is in a sitting position during the anesthetic!

Figure 5 shows another dentist, Dr. Armin Rottman. He was the chief dentist at the Polyclinic in Budapest, Hungary. This magnificent medal is cast (not struck) in bronze, and is 65 mm in diameter. The centre of the field is dominated by a portrait of Dr. Rottman, facing slightly to the right, and wearing a broad-brimmed hat. As well as his name, we also see his dates, 1860-1932. Just below his right ear is inscribed the name of the sculptor, "Sidlo". The medal is uniface.

Dental school centennial

We switch now from individual dentists to a dental school. In 1965, the College of Dentistry of New York University celebrated its centennial with the production of a sou-

venir medal. This is one of the largest medals in my collection. . . . 76 mm in diameter. The obverse (Fig. 6) has the words, "Century of Dental Progress — 1865-1965". In the centre field are two crests. To the left is the crest of the New York University and to the right, the crest of the College of Dentistry. The reverse (Fig. 7) has the words "Dedicated to Continuous Scientific Education". Above this legend is the classical lamp of learning. Below is a modified staff of Aesculapius and to the right is a laurel branch.

The final item is a German bank note. During the decade following the First World War, Germany, along with much of Europe underwent a period of hyperinflation. Central banks could not keep up with the increasing demand for more and more bank notes in higher and higher denominations. In order to facilitate trade, many municipalities began to produce unofficial notes, intended mainly for use within their own communities. This proliferation of "notgeld" produced a huge variety of designs, one of which is of interest to dentistry.

Bank note depicts extraction

The city of Hannov-Munden issued a series of notgeld in 1922 in five denominations from 25 pfennig up to 2 marks. It is the two-mark note that I will examine in more detail. One side of the note (Fig. 8) shows Dr. Johannes Andreas Eisenbarth (1661-1727) who has been described as a physician, charlatan and showman.⁽¹⁾ His exploits were the subject of a 16-verse, satirical folk song of his day. The first line of the song is written at the top of the bank-note. . . . "Ich bin der Doktor Eisenbarth" (I am the Dr. Eisenbarth) The reverse (Fig. 9) of the note shows Dr. Eisenbarth at work. He is extracting a tooth from a patient apparently tied down to the chair. It must be a difficult extraction because the operator is pressing his right foot into the patient's abdomen to improve the leverage. To the right is a comatose man who seems to be sleeping off the effects of the opium from the bottle standing between his legs.

These are the dentally-related items in my collection. There are undoubtedly dozens, or perhaps even hundreds, of other coins, medals and bank notes that would show a dental theme. Numismatics is a fascinating, life-long hobby which I can heartily recommend to combat the "stress" that affects dentists in the 1980s. I would be willing to correspond with any reader on the subject of dentistry in numismatics.

Dr. Kay is a Toronto anaesthetist. He may be contacted at 12 Peveril Hill Road South, Toronto, Ont. M6C 3A3.

⁽¹⁾ Ben Z. Swanson, SDS, London, England. — Personal communication.



Figure 2



Figure 4



Figure 6



Figure 8



Figure 3



Figure 5

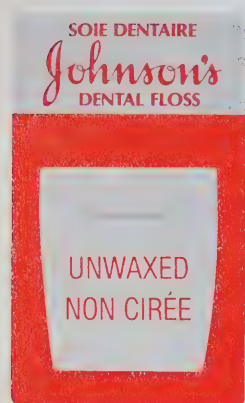


Figure 7



Figure 9

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Clinical Features

ANTIBIOTICS

FOR PERIODONTAL DISEASE

WHEN, WHY AND WHAT

David Hanmer, DDS

The following clinical article is the first to appear in a new section of the Journal, entitled "Clinical Features." Many of the articles which readers will see in this new section will be written by private practitioners and will be largely based on table clinics presented at various dental conventions and presentations across Canada. This first article was presented at the Ontario Dental Association's annual convention in May 1985.

L'article clinique que voici est le premier d'une nouvelle chronique du *Journal* intitulée: *Propos cliniques*. Nombreux seront les articles qui, dans cette chronique, seront rédigés par des praticiens privés et qui seront largement basés sur des démonstrations cliniques présentées à des congrès et des rencontres dentaires tenus au Canada. Le premier article a été présenté au Congrès annuel de l'Association dentaire de l'Ontario, en mai dernier.

Antimicrobial use has risen dramatically in dentistry over the past decade, as much new information has come to light with respect to which bacteria are involved with various disease states. This has therefore enabled the informed dentist to select the most appropriate agent, depending upon the clinical state of the individual patient.

While increasingly specific agents can be most useful in the treatment of periodontal disease, one must remember that they are at best only adjuncts to proper care. There is currently no substitute for thorough mechanical debridement and a good oral hygiene regimen. This should always be included in the management of any periodontal patient.

Suggested guidelines for when to use antibiotics include:

1. Adults with refractory periodontal disease who have not responded to conventional therapy;
2. Patients with juvenile periodontitis;
3. Patients with acute infections including periodontal abscesses and acute necrotizing ulcerative gingivitis (ANUG);
4. Patients with systemic diseases known to result in detrimental effects to the periodontal tissues, eg. diabetes, neutrophil dyscrasias, nutritional deficiencies, etc.

Indications, Advantages and Disadvantages of Selected Antibiotics

1. Penicillin

Penicillin V is still considered to be a useful drug in the treatment of some periodontal disease forms. Acute necrotizing ulcerative gingivitis (ANUG) responds well, as do periodontal abscesses. Its use should perhaps be limited, however, since it is often the antibiotic of choice for life-threatening situations. Further, since it is used systemically, any long term use is most undesirable due to the possibility of the development of resistant strains which could ultimately be involved in a life-threatening infection.

SUGGESTED DOSAGE: 300 mg q.i.d. for 7 to 10 days

2. Erythromycin

Erythromycin is a generally well tolerated, broad spectrum antibiotic which is bacteriostatic in its action. While many periodontopathic organisms are susceptible to it, there are other perhaps more specific drugs which may be used to better advantage.

3. Spiramycin (Rovamycin[®])

Originally popularized in the 1960's, spiramycin has come to be a popular drug in the treatment of periodontal diseases. A macrolide antibiotic, similar in spectrum to erythromycin, this drug has a somewhat unique property of concentrating in the tissues of the periodontium (gingiva,

alveolar bone), and in the salivary glands. Significant concentrations have been noted in these tissues for up to two weeks after the drug has been discontinued. The drug's spectrum is primarily gram-positive, and is therefore potentially useful with those organisms responsible for gingivitis (*Actinomyces*, *Streptococci*). It may further be useful in cases of periodontitis because of the synergistic relationship which develops between some gram-positive and gram-negative periodontopathic organisms. Stated more simply, by eliminating the gram-positive types, the gram-negatives associated with destructive periodontitis may be unable to survive due to their dependence on the former.

Clinically, this drug is, probably best suited to more acute forms of inflammatory periodontal disease, i.e. those demonstrating redness, edema and significant bleeding upon probing.

SUGGESTED DOSAGE: Rovamycin 250 (750,000 I.U.) q.i.d. or Rovamycin 500 (1,500,000 I.U.) b.i.d. for 7 to 10 days.

4. Tetracycline

This drug, a bacteriostatic broad spectrum antibiotic, has been researched and used heavily in the United States for periodontal disease. It is active against both gram-positive and gram-negative microorganisms, and is secreted and concentrated in the gingival crevicular fluid. Unlike some other commonly prescribed drugs, this one is effective against *Actinobacillus actinomycetemcomitans* (Aa), one of the suspected key organisms associated with juvenile periodontitis. Well controlled studies comparing mechanical debridement, with and without tetracycline as an adjunct, have yielded favourable responses. The results with the drug alone, however, were quite poor. Caution must be used when prescribing this drug, because of possible fungal overgrowth (eg. with *Candida albicans* resulting in candidiasis) of mucous

membranes including oral, gastro-intestinal and vaginal. Recent reports also suggest that tetracycline may diminish the effect of birth control pills, and patients must therefore be informed.

SUGGESTED DOSAGE: 250 mg q.i.d. for 10 to 14 days, except in cases of juvenile periodontitis, where a longer regimen is currently recommended.

5. Metronidazole (Flagyl[®])

Metronidazole is a relatively recent addition to the periodontal armamentarium, but it is a well known anti-anaerobic agent. This makes it particularly useful therefore in the treatment of more chronic forms of periodontitis where such bacteria are usually found. The drug is active against spirochetes, and may therefore be used effectively in the treatment of ANUG, but it is not effective in the treatment of juvenile periodontitis, since its spectrum does not include Aa.

Patients should be cautioned not to drink alcohol while taking this medication due to its 'antabuse' effect causing gastro-intestinal upset.

SUGGESTED DOSAGE: 250 mg t.i.d. or q.i.d. for 7 to 10 days.

Concluding Remarks

The results noted to date with selected antibiotics have been based upon short term administration only. Unfortunately, these results, while impressive at first glance, do not reliably persist after termination of drug administration. Further, long term administration is not acceptable at this time due to concerns regarding side-effects (toxicity, allergy, drug interaction, super-infection, gastro-intestinal disturbances) and the potential development of resistant strains of bacteria.

Under such circumstances, one can therefore not over emphasize the importance of conventional periodontal therapy in the treatment of periodontal diseases.

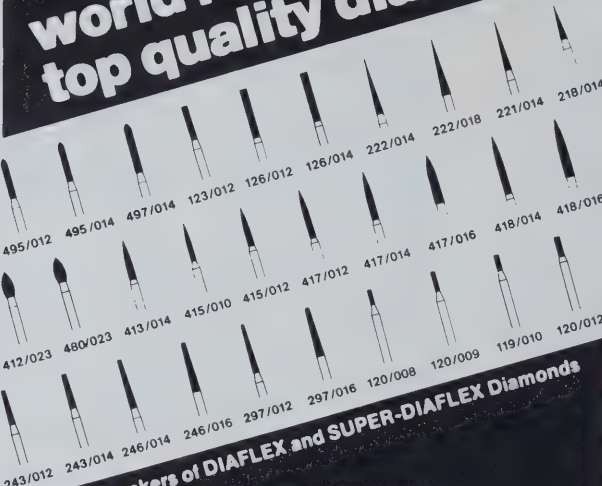
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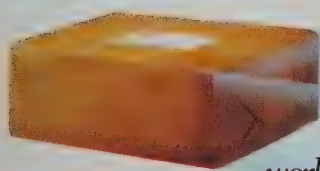
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BULIMIC EROSION

DENTAL MANAGEMENT AND REPORT OF CASES

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ABSTRACT

Erosive changes of the dentition leading to restorative failure are common in the condition known as bulimia. The incidence of this binge-purge behaviour is probably greater than reported. Dentists and dental auxiliaries are in a key position to identify patients with this eating disorder and may be the first contact with the patient because of the oral changes. A protocol for the management of these patients is outlined.

SOMMAIRE

Dans les cas de boulimie, il est fréquent de noter des changements qui détériorent les dents et causent l'échec des restaurations. Faire bombance est un comportement dont l'incidence est probablement plus élevée qu'on le signale. Les dentistes et les auxiliaires sont bien placés pour repérer les patients qui ont ce problème d'alimentation et peuvent être les premiers à les traiter à cause des changements qui se produisent dans la bouche de ceux-ci. Cet article propose un protocole pour la gestion de ces patients.

INTRODUCTION

Bulimia (bulimarexia, bulimia nervosa, dietary chaos syndrome, binge-vomiting syndrome, binge-purge syndrome), an eating disorder characterized by binge eating followed by purging (voluntary, self-induced vomiting), is currently recognized as a separate syndrome from anorexia

nervosa.¹ Yager² recently reported that the ratio of bulimic to anorexic patients at the UCLA Eating Disorders Clinic is approximately 75:1. **Table I** summarizes the psychiatric criteria for the diagnosis of bulimia.³ Unlike the anorexic patient, the bulimic usually has a normal body weight and appearance. Halmi et al,⁴ reported that almost 10 per cent of students of an American college of dance and gymnastics had symptoms of bulimia. Furthermore, bulimia does not appear to have the high female

to male ratio reported with anorexia nervosa.^{1,5}

Whether the binge-purge behaviour is for stress relief or diet/weight control, the dental manifestations should be clear in the dental practitioner's mind. Failure to recognize the dental features of this disorder may lead to increased patient expense due to restorative failure, or more serious metabolic problems.

The purpose of this article is to outline the primary and secondary oral manifestations

TABLE I*

Psychiatric criteria for the diagnosis of bulimia

- A. Recurrent binges
- B. At least three of the following:
 - 1. ingestion of high caloric food during binge
 - 2. secretive, premeditated binges
 - 3. abdominal pain, sleep, purging at the end of binge
 - 4. repeated attempts to lose weight by dieting, vomiting, laxatives or diuretics
 - 5. weight fluctuations of 10 lbs. or more
- C. Awareness of abnormal eating pattern
- D. Depression, self-deprecation during binges
- E. Bulimic episodes not due to anorexia or known physical disorder.

*Adapted and modified from DSM III, American Psychiatric Association.

TABLE II

Primary Clinical Oral Manifestations

- 1. Perimylolysis (erosion) of lingual surfaces of maxillary anteriors⁹
- 2. Dentin sensitivity⁶
- 3. Increased caries incidence^{1,10}
- 4. Xerostomia^{6,8}
- 5. Pulpal exposures⁶
- 6. Glossodynia⁹
- 7. Thinning/fracture of maxillary incisal edges⁸
- 8. Extrusion of amalgam restorations⁷
- 9. Gingival problems⁵
- 10. Absence of staining⁸

TABLE III

Secondary Clinical Oral Manifestations

- 1. Loss of arch integrity (vertical dimension)^{5,7}
- 2. Diminished masticatory ability⁶
- 3. Secondary TMJ/MPD problems⁶
- 4. Parotid enlargement^{2,11}
- 5. Poor aesthetics⁵

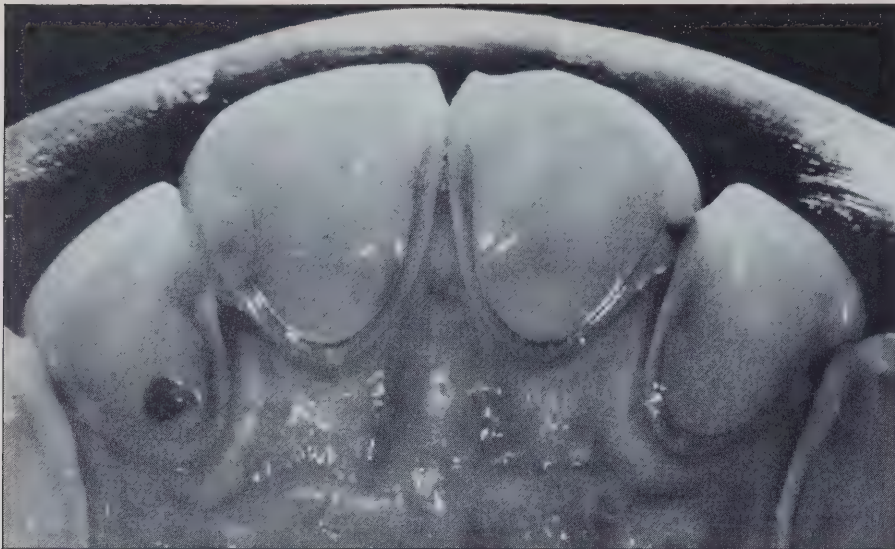


Fig. 1. Well-delineated interproximal caries. Note also thin band of enamel at cervical margins.



Fig. 2. Buccal cervical erosion of 23, 25, 26, 35 and 36.

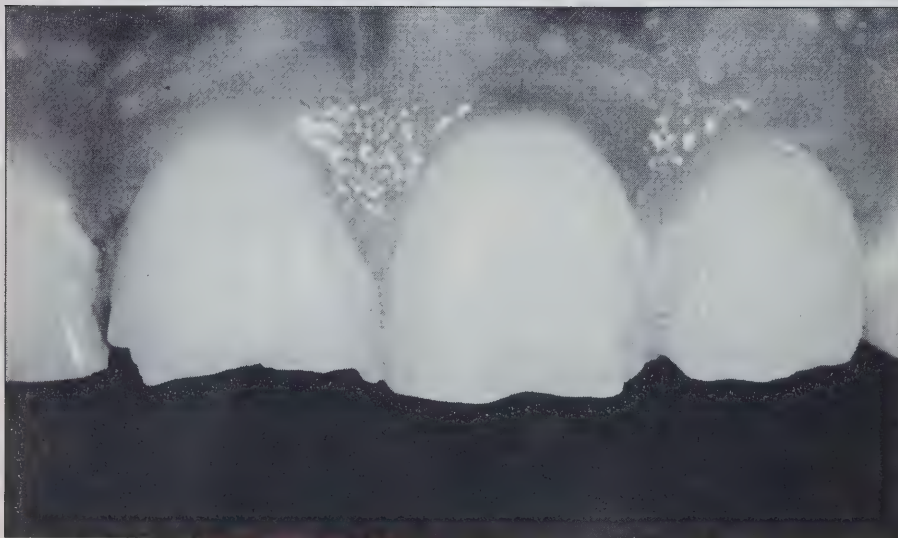


Fig. 3. Incisal edge fractures and crazing.

of this disorder and to suggest a treatment protocol for the management of associated dental problems. In addition, we will report three cases involving two female and one male patient with bulimia.

The oral manifestations of bulimia are listed in **Tables II and III**. The major dental problem of bulimic behaviour is enamel erosion (perimyololysis).⁵⁻⁸ Kleier et al.⁶ stated that erosive changes caused by this disorder require regurgitation of at least two years' duration. The pattern of erosion from bulimia is quite characteristic. The palatal surfaces of the maxillary anterior teeth, including the cuspids and first bicuspid, are initially involved. Occlusal surfaces of the mandibular premolars and molars are the result of more chronic, undetected vomiting. Finally, there may be buccal cervical involvement of these same mandibular, and occasionally maxillary posterior teeth.⁸ When the occlusal surfaces are eroded, the restorations appear elevated or protruded above the occlusal surface.⁷ Dentine sensitivity may be the patient's chief complaint.

CASE 1

A 27-year-old caucasian female was referred to the Mouth Clinic at the Faculty of Dentistry, Dalhousie University, following a routine patient screening examination. The complaints of tooth sensitivity and erosion of the maxillary anterior teeth were to be evaluated. The medical history revealed allergies to pollens, dust and alcohol. The patient also suffered from bronchial asthma, for which she took a sustained release bronchodilator, theophylline. She also used salbutamol (Ventolin) as necessary.

The extraoral clinical examination was unremarkable. Intraoral examination revealed minimal incidence of recurrent decay, several missing teeth, including four bicuspid extracted for orthodontic purposes, and a mild generalized gingivitis. Several anterior interproximal carious lesions were present, and plainly visible from the lingual even without transillumination (**Fig. 1**). The lingual surfaces of the six maxillary anterior teeth were devoid of enamel except for a thin band at the cervical margins (**Fig. 1**). The incisal edges of these teeth were very thin and showed evidence of chipping. Several teeth revealed a pink coloration centrally on the lingual surface through thin translucent dentine (**Fig. 1**). These surfaces were extremely smooth and sensitive to air and touch. Erosive areas also appeared at the cervical margins of several maxillary and mandibular posterior teeth (**Fig. 2**). The patient denied any history of stomach problems or gastric reflux, but upon further questioning admitted that she "used to throw-up a lot". At subsequent appointments she revealed that she was still

purging herself voluntarily following periods of binge eating. The clinical diagnosis of bulimia was made. The patient was counselled as to the dental damage which she had caused and instructed in ways to minimize the damage should she persist with the behaviour.

CASE 2

A 29-year-old caucasian male was referred to one of the authors (DM) for the evaluation of erosion and related tooth sensitivity. During the medical history, the patient reported that he had gone through several years of binge-purge behaviour. He would, at times, eat up to two litres of ice cream or peanut butter and would induce vomiting afterwards by placing his fingers down his throat. He also attested to the use of laxatives as a method of purging, following the ingestion of extraordinary amounts of cakes, cookies and other carbohydrate foods. He stated that his mother had always "overfed" the family, and that at the times he binged he felt somewhat depressed and overweight. He denied any current bulimic behaviour and explained that he was presently pleased with the direction of his life.

Intraoral examination revealed few amalgam restorations and no indication of gingivitis or periodontitis. Chemical erosive changes were evident on the lingual surfaces of the maxillary anterior teeth, and there were many chipped incisal edges (Figs. 3 and 4). Unlike the even pattern of incisal wear seen with attrition or occlusal wear, the chipped surfaces were irregular in shape and extremely thin; that is, more consistent with the clinical erosive changes. Several composite restorations were failing because of loss of marginal integrity. There was no recurrent decay associated with these restorations. Since the patient had stopped the bulimic behaviour, he was referred to private practice for restoration of the failed restorations and incisal damage. Topical fluoride applications were made and the patient advised to use daily fluoride rinses.

CASE 3

A 24-year-old caucasian female patient was referred to the Mouth Clinic by the Student Counselling Service, Dalhousie University, to determine the extent of the dental damage caused by seven years of binge-purge behaviour. The patient was a quiet but amiable person who expressed concern about her sensitive and "broken" teeth. She stated that she still practised purging behaviour mainly for weight control in her athletic endeavours, and was currently undergoing counselling about her eating disorder.

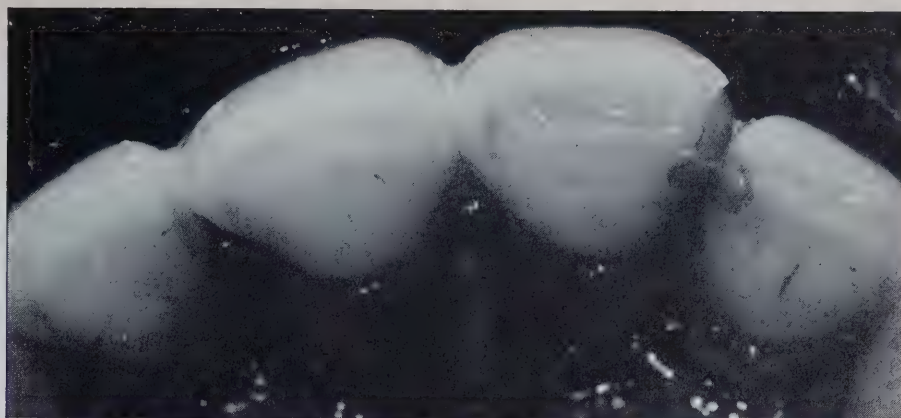


Fig. 4. Failing restorations, erosive change.

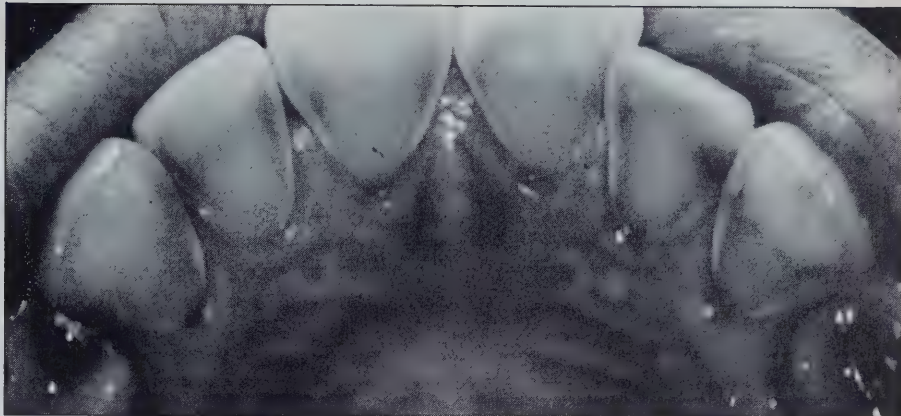


Fig. 5. Erosion of lingual surfaces of all anteriors and cervical areas of bicuspids.

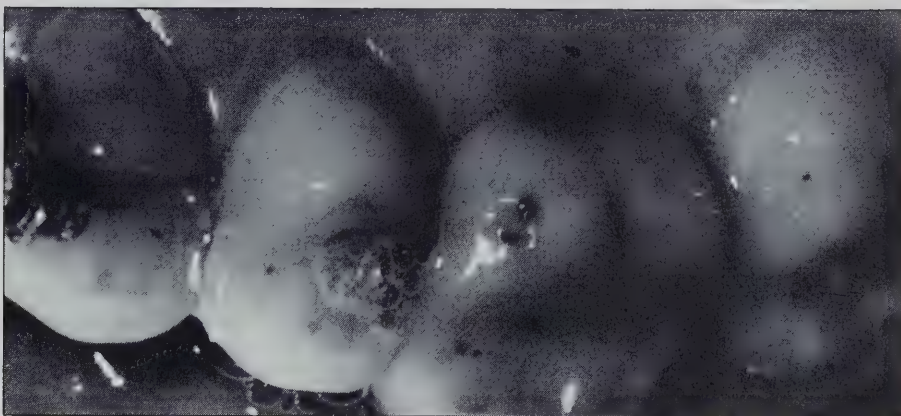


Fig. 6. Note lack of anatomy of occlusal surfaces. Teeth appear polished.



Fig. 7. Severe recession.

Extraoral examination revealed bilateral lymphadenopathy in the anterior cervical region consistent with a recent throat infection.

Intraoral findings included a non-vital 45, severe erosion of the lingual surfaces of the maxillary anterior teeth, and the maxillary bicuspid and first molars bilaterally (Fig. 5). In addition, the molars and bicuspid showed erosion of their occlusal surfaces (Fig. 6). The incisal edges of the maxillary central incisors were thin and translucent. Little chipping was evident; however, this was probably due in most part to the anterior open bite (Fig. 7). Several restorations on the lower posterior teeth appeared to be above the occlusal surface of the tooth and had defective margins. There was also extreme recession of the buccal gingiva on all teeth from 34 to 44 (Fig. 7). The maxillary lateral incisors, cuspids and first bicuspid displayed similar recession.

The patient was counselled as to the extent of the damage inflicted on her dentition by her habitual behaviour. She was also advised that the bulimia was, at least partially, to blame for the numerous failed restorations about which she was concerned. Home care instructions were given to her to minimize possible future damage.

DISCUSSION

Dental erosion has many different causes, some of which include excessive consumption of soft drinks or citrus fruits,⁹ occupational exposure to chemicals,¹² and more recently, chewable vitamin C tablets.¹³ Kleier et al.⁶ differentiate between erosion and perimolysis; that is, the erosion secondary to chronic vomiting. They list various medical conditions which may result in perimolysis including gastric disturbances, hiatus hernia, ulcers, obstipation, antabuse therapy, pregnancy, chronic regurgitation and achlorohydia. There can be more serious consequences of binge-purging behaviour, such as hypokalemia and electrolyte imbalance,¹ neuroendocrine abnormalities¹⁴ and the risk of heart malfunctions from lowered potassium levels.¹⁵ Bulimic behaviour, if suspected, might be elicited by a few indirect questions such as: 1) "Are you dieting?" 2) "Do you have stomach complaints?" 3) "Have you ever had problems keeping food down?" If medical problems such as those described by Kleier et al. are revealed, a frank discussion concerning reflux or regurgitation can ensue. Evasive or obscure responses in the presence of clinical signs such as those listed in Table II should make the clinician highly suspicious of an eating disorder. If the practitioner then, in a non-judgmental way, informs the patient of the dental damage

which has occurred and demonstrates this damage by mirror or study models, the patient may admit their purging behaviour. Most patients feel that their behaviour is socially unacceptable. The dentist, by discussion of methods available to minimize the erosion, may establish a positive rapport with the patient, and management and referral to an eating disorders clinic is made much easier. The following is a proposed treatment outline to aid the practitioner in the proper management of a patient suspected of bulimic behaviour.

Treatment Outline

A. Patient Education

Advise the patient of:

- (1) your awareness of the problem
- (2) the extent of the damage
- (3) the necessity for scrupulous oral hygiene
- (4) the importance of nutrition
- (5) the importance of acid neutralization
- (6) the importance of topical fluoride application

B. Dental Treatment

- (1) acid neutralization with the help of antacids, prior to purging and afterwards, rinsing with sodium bicarbonate, brushing including the tongue
- (2) fluoride rinses — .05% NaF with neutral pH
- (3) pit and fissure sealants
- (4) magnesium hydroxide — filled plastic splints
- (5) etched resin composites for fractures
- (6) comprehensive restorative procedures (full coverage in severely damaged cases)
- (7) more frequent recall to monitor restorations and administer topical fluoride

C. Psychological "Treatment"

- (1) referral to physician or psychologist
- (2) simple behaviour modification with respect to dental care.

CONCLUSIONS

It is clear that there is great potential for extensive damage to tooth structure from bulimia. The resultant enamel erosion may be a significant cause of restorative failure. The dentist is in a unique position to identify the earliest manifestations of this disorder because he/she may be the first professional contact. Gentle questioning and good rapport may lead to the patient's admission of his/her problem — the first step towards rehabilitation. A treatment outline has been proposed for the successful management of the bulimic patient.

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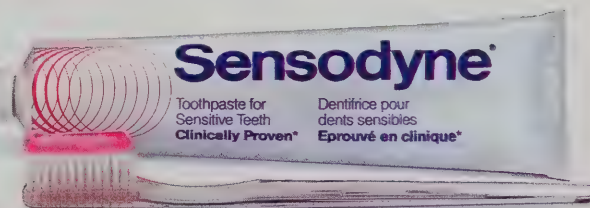
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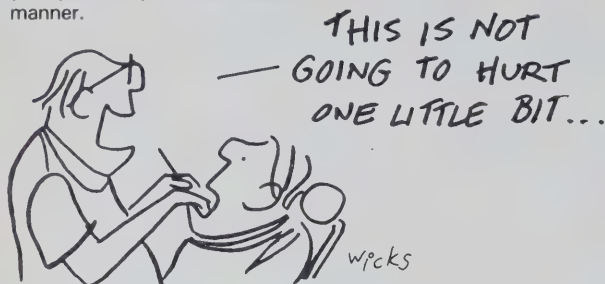
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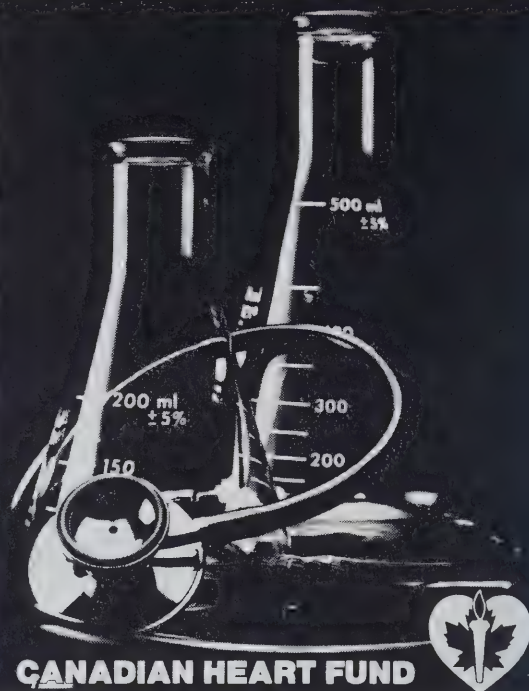
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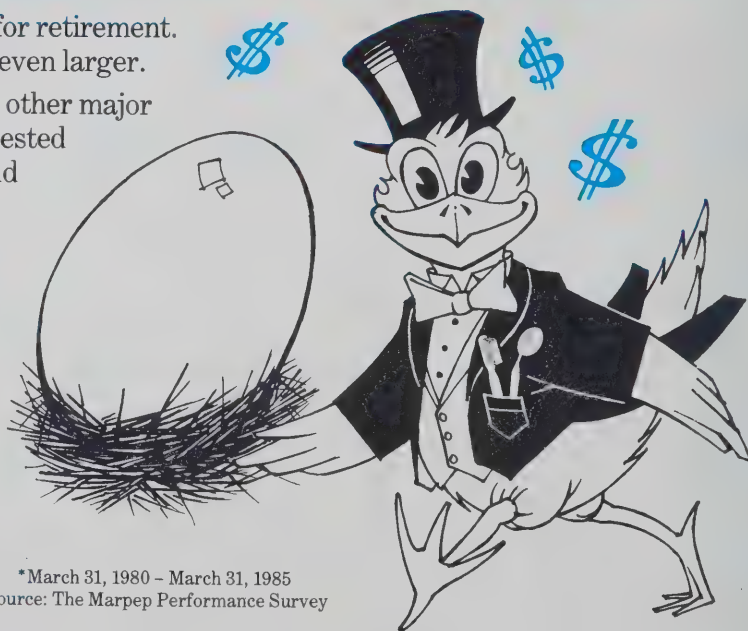
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FREQUENCY OF AMALGAM REPLACEMENT IN GENERAL DENTAL PRACTICE

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ABSTRACT

Over five consecutive working days, 108 dentists in British Columbia recorded the number of amalgam surfaces they removed and stated their reasons. The primary reasons cited were recurrent caries (19 per cent), new caries (21 per cent) and marginal breakdown (21 per cent). The dentists removed 3,662 surfaces from 1,707 teeth; 6.8 surfaces/dentist per day. At \$15.00 per surface, 1,500 British Columbia general practitioners removed over \$150,000.00 worth of amalgams each day. Although the physical properties of silver amalgam have improved while the caries rate has decreased, knowledge and application of preventive measures have increased, with a resultant reduction in caries prevalence. The rate of replacement is unchanged from 1972 – 6.6 surfaces/dentist/day. As a reason for removal, marginal breakdown increased 400 per cent over the 12 years. How can this increase be justified? Teaching programs, as well as practitioners, should focus on positive alternatives to amalgam replacement. The effective use of fissure sealants is now well documented, and refinishing and recontouring procedures, rather than replacement, can extend the life of restorations. These time- and cost-effective procedures should be encouraged and supported by dental health care plans.

SOMMAIRE

En Colombie-Britannique, 108 dentistes ont, durant cinq jours de travail consécutifs, noté le nombre de surfaces d'amalgame qu'ils ont retirées et ont indiqué leurs raisons. Les principales raisons évoquées sont: des caries récurrentes (19 pour cent), de nouvelles caries (21 pour cent) et des effondrements marginaux (21 pour cent). Les dentistes ont retiré 3.662 surfaces de 1.707 dents, soit 6,8 surfaces par dentiste par jour. À 15\$ la surface, 1.500 praticiens dentaires retirent chaque jour, en Colombie-Britannique, une valeur de 150.000\$ en amalgame. Tandis que les propriétés physiques de l'amalgame d'argent ont été améliorées et que le taux des caries a baissé, les connaissances touchant les mesures pour prévenir les caries et leur application ont augmenté, ce qui a entraîné une baisse dans la prévalence des caries. Depuis 1972, le taux de remplacement est resté stable: 6,6 surfaces par dentiste par jour. Parmi les raisons évoquées, les effondrements marginaux ont quadruplé entre-temps. Comment expliquer ce fait? Les cours donnés et les praticiens devraient se pencher sur les choix qui existent pour remplacer avantageusement l'amalgame. On possède maintenant une bonne documentation touchant l'utilisation efficace des obturateurs de fissures et l'on sait que les procédures pour repolir et refaire les contours des restaura-

tions peuvent en prolonger la durée sans qu'on ait à les remplacer. Ces procédures épargnent temps et argent et les régimes d'assurance dentaire devraient les favoriser.

INTRODUCTION

For the past century, the focus of clinical restorative dentistry has been the treatment of primary caries with silver amalgam and the replacement of previously placed defective restorations. Amalgam, the most widely used restorative material in dentistry to date, has been continually researched in the laboratory but evaluated to a lesser degree in the clinical setting. The introduction of high copper alloys has resulted in improved clinical properties,¹⁻⁵ while the increased concern for mercury poisoning⁶⁻⁸ has encouraged the development and refinement of alternate materials.

In spite of continuous use and testing, little has been documented with regard to longevity of amalgam restorations. However, Charbeneau and Klausner⁹ and Mjor¹⁰ have recently reported high rates of amalgam replacement, varying from 38 per cent to 71 per cent respectively. Recurrent caries was cited in both reports as the primary reason for over 50 per cent of the replacements.

In 1972, a survey of 50 practising dentists revealed a replacement rate of 6.6 surfaces in 3.8 teeth per day per den-

tist. New caries, recurrent caries and caries under existing restorations represented 68 per cent of the reasons for replacement. The purpose of this investigation was to repeat the 1972 survey to determine what effect a reduced caries rate and improved materials may have had on the replacement of silver amalgam restorations.

METHOD

A sample of dentists in British Columbia was taken from the 1983 Registrar's directory. Every tenth name was selected, provided the dentist had graduated within the last 25 years and was in general practice. When a dentist did not meet these criteria, the next closest name was chosen. Letters and recording forms were mailed to 171 dentists. The sample distribution fairly represented the geographic distribution of the practising population within the province. Thirty per cent of the sample were

graduates of the University of British Columbia, 20 per cent were Alberta graduates, 9 per cent each were McGill and Toronto graduates and 10 per cent were graduates from the United States.

Each dentist was asked to record the number of amalgam surfaces replaced on five consecutive working days, indicating the reasons; more than one reason could be given. The dentist was also requested to record the patient's age, the tooth treated and the type of restoration placed.

The 12 reasons listed on each recording form were: recurrent caries, new caries, caries under existing restorations, chipped margin, poorly contoured restoration, overhanging margin, fractured tooth, pulpal pathology, fractured amalgam, gold replacement, original amalgam lost and other reasons.

RESULTS

The number of questionnaires completed and returned totalled 63 per cent and was reflective of the sample distribution. Over five days, these 108 dentists removed 3,662 surfaces of amalgam from 1,707 teeth — 33.9 surfaces per dentist. This represents 6.8 surfaces removed per dentist per day.

The reasons for removal are shown in Table I. Caries in some form represented 50 per cent of those reasons, chipped margins 21 per cent, and the remaining reasons, less than 10 per cent each.

More than one reason was often given and therefore the total recorded reasons do not equal the total restorations or surfaces removed. Seventy-two cast restorations were placed. The four most frequently cited reasons are illustrated and contrasted with 1972 data in Figure 1. In 1972, caries constituted 68 per cent of the reasons, in 1984, 50 per cent. Marginal breakdown as a cause

for replacement rose from 5 per cent in 1972 to 21 per cent in 1984.

The mean age of the patients was 34 years (26.5 years in 1972). Of the 1,707 teeth from which restorations were removed, 5 per cent were primary teeth. Forty-eight per cent of the permanent teeth involved were in the maxillary arch and 52 per cent in the mandibular arch. First permanent molars were most frequently involved (45 per cent) with the greatest incidence in the mandible, followed by second permanent molars and second premolars.

DISCUSSION

Although survey questionnaires such as the one used in this study are subject to variation in clinical judgement, we believe the results are valid and reflect current conditions in clinical general practice.

Caries is the reason for replacement of 50 per cent of amalgam restorations, and this agrees with results of other studies.¹⁰⁻¹³ For example, Healey and Phillips¹² reported 54 per cent, Richardson and Boyd,¹¹ 68 per cent; Lavelle¹³ 54 per cent and Mjor¹⁰ 58 per cent. This overall high replacement rate is further supported by studies of Moore and Stewart,¹⁴ who reported that nearly half of all amalgams were defective and Elderton¹⁵ who found one in three to be deficient. Therefore, in spite of reduced caries incidence, intense preventive programs and improved materials, the replacement rate has remained unchanged. In British Columbia in 1972, 6.6 amalgam surfaces were removed per day per dentist and in 1984 it was virtually unchanged at 6.8 surfaces. Why has the replacement rate remained high? Is the fault with the material, the dentist or the patient?

With respect to materials, high copper alloys have shown improved clinical performance. They exhibit increased resistance to corrosion and manufacturers claim that creep is significantly lower, a property that is predictive to some extent on the long-range clinical performance of an amalgam restoration, since it relates to reduction in marginal breakdown.^{16,17} Yet, compared to 1972, marginal breakdown as a reason for amalgam replacement rose from 5 per cent to 21 per cent. Perhaps chipped and broken-down margins were not seen as a legitimate reason for removal in 1972 or the materials performed so badly that recurrent caries in association with the breakdown was the primary reason cited. In British Columbia, the dentist-patient ratio has increased from 1:2105 to 1:1792, while the caries rate has decreased. Due to an increased supply of dentists, a reduction in caries and a drop in the economy, many dental offices in B.C. have less work and time is now available for restorations with

TABLE I

Reasons For Removal of 3,662 Amalgam Surfaces Over 540 Days

	Total	%
Recurrent caries	446	19
New caries	491	21
Caries under amalgam	236	10
Chipped margin	489	21
Poorly contoured	83	3
Overhanging margin	53	2
Fractured tooth	184	8
Pulpal pathology	36	1
Fractured amalgam	216	9
Gold replacement	27	1
Original amalgam fell out	49	2
Other	63	3
	2,373	100

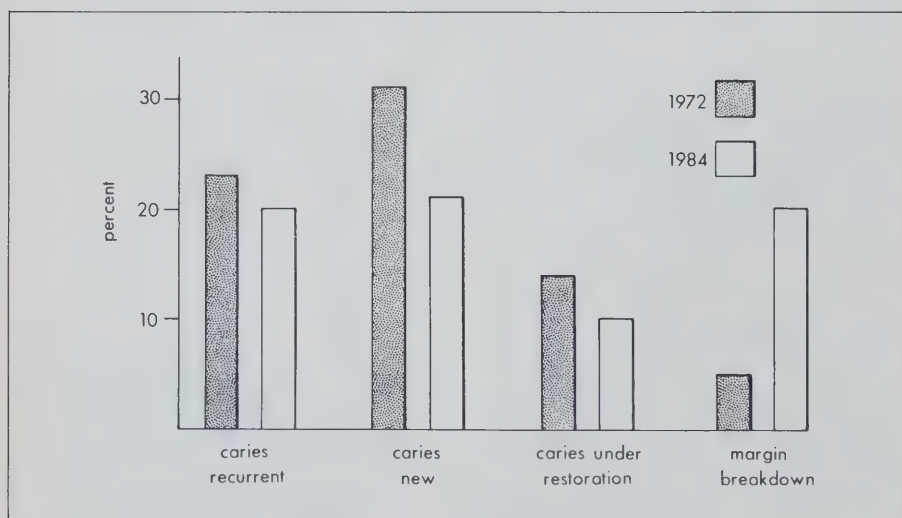


Fig. 1 Frequent reasons for amalgam removal: 1972 and 1984

marginal breakdown to be replaced. The question is: Is replacement necessary? What size of "catch" is needed to justify the replacement of the restoration? Should a margin that a $\frac{1}{2}$ round bur drops into be treated the same as one detected by a sharp Suter explorer?

Is marginal breakdown a legitimate reason for replacement? There is a relationship between marginal breakdown and ultimate replacement due to recurrent caries;^{18,19} but perhaps that 21 per cent could have been reduced significantly, or the longevity of the restoration increased, if refinishing procedures were used rather than replacement. Given that the patient population will live longer, reducing the number of times a restoration is replaced by increasing its longevity would be highly desirable and a good service to the patient.

Individual oral hygiene practices can certainly play a role in restoration replacement, but education on a mass scale probably has little direct effect.^{20,21} Health motivation, however, is extremely difficult to measure and therefore one cannot be certain of its non-effect.²¹ Over the past 10 years, caries incidence has decreased substantially throughout the industrially developed world.²⁰⁻²³ In this survey, the mean age for replacement rose from 26.5 years to 34 years in a 10-year period. Are we now replacing those same amalgams that were placed or replaced only 10 years ago?

Several studies have reported that only 50 per cent of the restorations last longer than 10 years,^{13,24,25} and Allan²⁵ reported half were replaced within five years and up to 33 per cent were replaced within two years, as cited in a study by Bailit.²⁶ Allan²⁷ in an earlier study estimated 25 years as the maximum life of an amalgam restoration, while Cecil,²⁸ in a retrospective review reported a range of 4-8 years as the average life span of an amalgam. If one extrapolates the value of 6.8 surfaces removed per day by a population of 1,500 dentists, the estimated cost at \$15.00 per surface would be \$153,000.00 daily. Taken one step farther, based on a five-day week, 46-week year, each dentist would remove \$23,460.00 worth of amalgam surfaces. Therefore, a staggering and not insignificant amount of money is being spent every day to replace amalgam restorations.

The indictment that our dental curriculum is "preparing students for the past" is common. Educators must be challenged to review current facts and assumptions — orientation must be directed toward the future. Let us take advantage of the effects of fluoride and other preventive measures by starting at the very beginning. The thought that amalgam restorations are

better and more economical has contributed to the under-utilization of sealants.^{21,29,30} Newer and approved materials as alternatives to amalgam must be carefully evaluated and considered. The understanding and application of new developments and knowledge should change the undergraduate curriculum and the future orientation of clinical practice.

Replacement dentistry is costly in time as well as money. Many factors have contributed to our overall lack of success. As we continue to use silver amalgam, practitioners are advised to choose alloy for use in practice with care, looking critically to clinical studies for guidance in selection and manipulation.^{31,32} Efforts to reduce the number of replacements must be made. Emphasis on the use of non-invasive techniques and refinishing previously placed amalgams will benefit the patients and reduce overall costs. Prepaid dental plans must be encouraged to realistically support these forms of treatment, in order that they can become viable alternatives to more expensive replacements.

CONCLUSIONS

The replacement rate of amalgam restorations over an 11-year period has remained the same in British Columbia. New and recurrent caries is still the principal reason for replacement of 50 per cent of the restorations while chipped margins account for 21 per cent.

Despite a decrease in caries incidence, improved restorative materials and widespread preventive measures, replacement dentistry continues to constitute a significant part of the cost of dental health care delivery. At a rate of 6.8 surfaces per dentist per day, replacement dentistry is costing \$153,000.00 each practice day.

The results of this resurvey places the onus on the dental school curriculum and the clinical judgement and skills of the practising professional to focus decisions regarding dental care on the following:

1. Continue to actively support and implement disease prevention programs, not only in private practice, but also in the community.
2. Clinical and epidemiological studies support the use of fissure sealants to postpone or prevent the need for a restoration.
3. Rather than replacement, consider refinishing and recontouring procedures to correct minor deficiencies and to enhance the longevity of the restoration.
4. The potential for a clinically successful restoration can be very easily increased by being familiar with the manufacturer's instructions for those materials in everyday use.
5. Critically evaluate new techniques and

materials by reviewing the scientific literature for reliable clinical reports which can form a basis for selection and use of new materials in clinical practice.

6. Our goal should be preserving sound tooth structure and providing economical preventive or corrective services to our patients.

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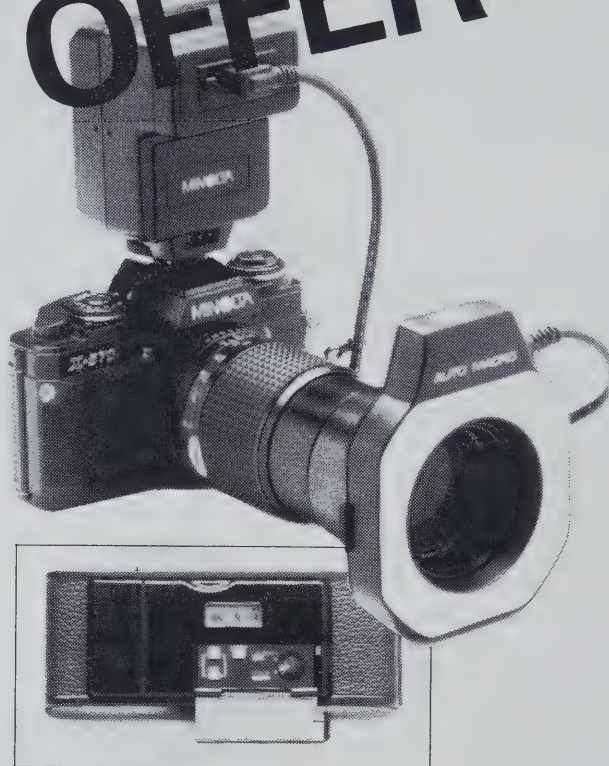
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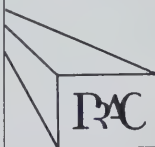
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DEFINITIVE IMMEDIATE CAST REMOVABLE PARTIAL DENTURES

Oskar Sykora, CTD, DDS, PhD
Halifax, N.S.

SUMMARY

Definitive immediate partial dentures have rarely been used as a treatment of choice, mainly because of the problems associated with the try-in of the cast framework prior to the insertion of the prosthesis. A new technique will be presented and described in detail which can overcome this problem, and its advantages and disadvantages will be enumerated.

SOMMAIRE

Il est rare que l'on pose immédiatement des prothèses partielles définitives dans la bouche d'un patient principalement à cause des problèmes liés à l'essayage de l'armature moulée avant l'insertion des prothèses. Cet article fait état d'une nouvelle technique qui peut surmonter ce problème et la décrit en détail en plus d'en indiquer les avantages et les inconvénients.

When a decision is made to construct a definitive immediate removable partial denture prosthesis, a problem arises in that it is not possible to evaluate the framework adaptation prior to insertion of the completed prosthesis. Should the framework fail to seat at the postsurgical time of insertion, the patient is left with unesthetic edentulous spaces until a new framework and prosthesis can be constructed.

Two methods have been advocated in the past in an attempt to overcome this problem. One method advocates the construction of the framework with design allowances to incorporate a separately con-

structed crib area to be placed over the teeth to be extracted. The cribless framework is placed in the mouth pre-surgically and evaluated for accuracy of the adaptation. If the framework fits satisfactorily, it is replaced on the master cast. The teeth designated to be extracted are removed from the master cast, and the separate crib area is electro-soldered to the rest of the framework.

The other method advocates the construction of wrought wire loop projections which are attached to the cast framework in the area of the intended future extractions. These crib retention loops are bent backward linguallly at the time of the framework try-in so as not to interfere with the fit of

the framework. Once the framework fit is evaluated and approved, the master cast is modified by the removal of the teeth designated to be extracted, and the wrought wire loop projections are adjusted over the newly created edentulous area.

A new, simpler method will be presented to illustrate a treatment approach which permits the try-in of the definitive framework for an immediate removable partial denture prior to extraction of anterior and posterior teeth.

CASE REPORT

A 45-year-old female patient presented with a request to repair her fractured mandibular, one-anterior-tooth acrylic resin

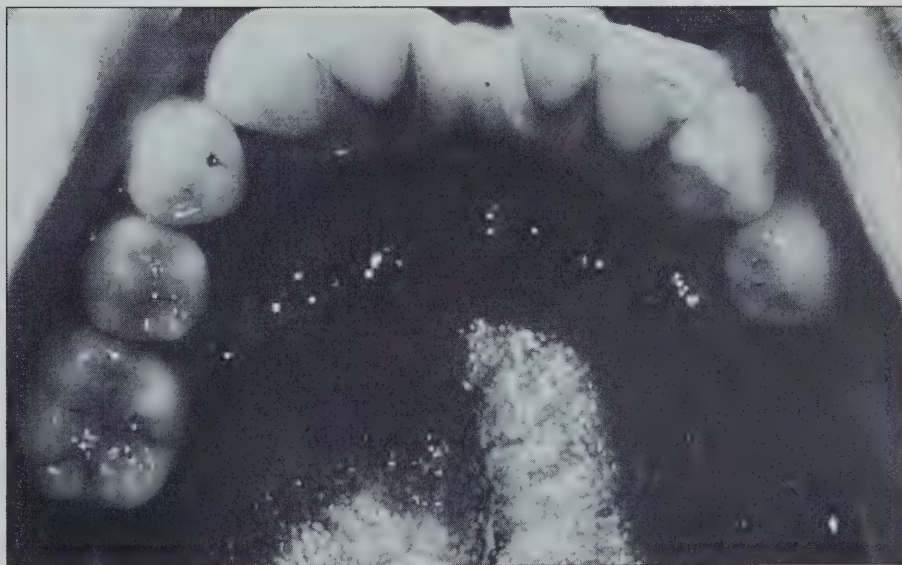


Fig. 1. Occlusal view; mandibular right central and left first molar have to be extracted.



Fig. 2. Buccal view showing the mandibular first molar which has to be extracted prior to the modifications.



Fig. 3. Buccal view of the master cast ready to be duplicated into a refractory cast showing the mandibular first molar after the modifications.

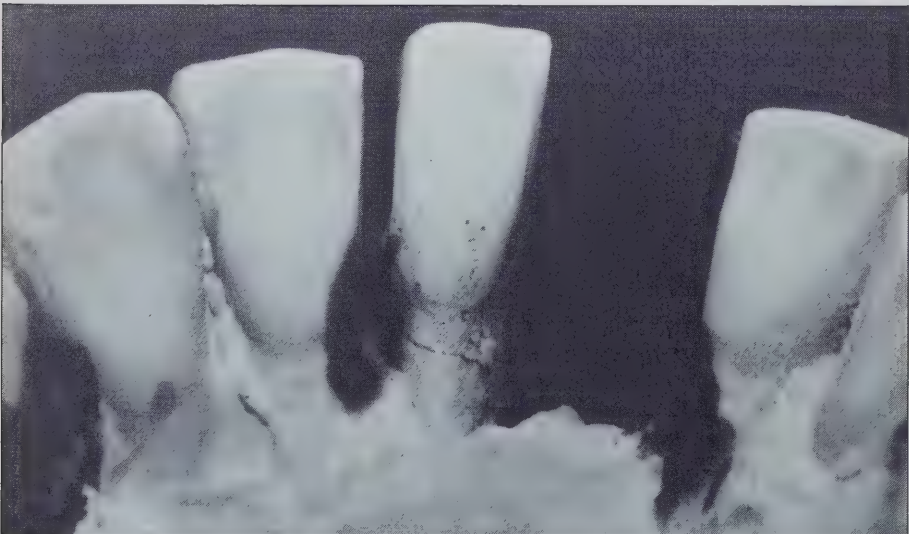


Fig. 4. Lingual view of the master cast ready to be duplicated into a refractory cast showing the mandibular central incisor which has to be extracted after the modifications.

removable partial denture. Upon examination, it was revealed that the prosthesis had been constructed for interim use for esthetic reasons, until such time as definitive treatment could be undertaken. However, the patient failed to return for the necessary follow-up treatment.

Having presented with a request for further prosthetic care, the patient's oral condition was re-assessed. It was determined that the mandibular left first molar and the mandibular right central incisor had extensive periodontal disease and had to be extracted (Fig. 1). Because of the patient's dental care history, economic factors and the time required for treatment, it was felt that repair of the old or construction of a new interim dental prosthesis was contraindicated. An immediate definitive mandibular removable partial denture of extracoronal design was determined to be the prosthetic treatment of choice.

TREATMENT PROCEDURES

1. Diagnostic impressions were made of both dental arches, and the subsequently fabricated casts were mounted by way of jaw relation records. The mounted diagnostic casts were analysed, and the removable mandibular partial denture framework design was finalised.

2. Abutment modifications for the basic framework design were completed in the usual manner. In addition, two interproximal slices were accomplished between the left mandibular first molar and second bicuspid, and the right mandibular central and lateral incisors (Figs. 2, 3 and 4). In both instances, only the teeth to be extracted were appreciably reduced in the contact areas. The remaining adjacent abutment teeth contact areas were modified only to provide the necessary degree of recontouring for guiding plane surfaces. The interproximal reductions were necessary for accurate reproduction of these areas for the fabrication of the framework (Fig. 5).

3. An impression was made of the prepared mandibular arch in a custom made acrylic resin tray with regular body polysulfide impression material. A master cast was fabricated utilizing an improved stone material.

4. The laboratory technician was then able to proceed with the construction of the cast metal framework with its direct-retainer components in the usual manner and as prescribed by the dentist.

5. The resultant framework casting permits a pre-surgical evaluation of its adaptation on the abutments and, if necessary, making slight adjustments to it (Fig. 6). The addition of acrylic resin impression bases for making a distal extension base secondary impression was completed, the new exten-

sion base impression made (Fig. 7) and an altered master cast constructed in the usual manner.

6. The construction of the occlusion rims, making of the interocclusal records, and the set-up of the teeth with subsequent try-in were completed in the usual manner.

7. Finally, the teeth designated to be extracted were removed from the altered master cast and appropriate acrylic resin teeth substituted. The prosthesis was then finished in the normal fashion. The mandibular left first molar and right central incisor were extracted, and the immediate definitive cast removable partial denture was inserted.

DISCUSSION

The **advantages** of this treatment procedure are as follows:

- a) the patient avoids the embarrassment of unesthetic multiple edentulous areas;
- b) the acrylic resin base may act as a surgical splint to help reduce post-extraction swelling and bleeding;
- c) the natural esthetics may be more readily reproduced with regards to tooth size, shape, colour and position;
- d) the procedure is both time and cost efficient;
- e) the patient avoids the potential deleterious effects of an interim acrylic resin partial denture on the soft tissues.

The **disadvantages** of this treatment procedure are as follows:

- a) a relining of the acrylic resin base may be required in the area(s) of dental extractions once the healing process is completed. This may entail additional economic consideration by the patient;
- b) although the small diastema created between the teeth designated for extraction and the abutment teeth can lead to a temporary food impaction problem until the prosthesis is completed, this was not observed by the author.

CONCLUSIONS

It would appear that the overall benefits of the construction of an immediate definitive cast removable partial denture prosthesis by the aforementioned modified method far outweigh the disadvantages.

SUMMARY

A modified technique for the fabrication of an immediate definitive cast removable partial denture prosthesis was presented along with its rationale and a clinical case history. The advantages and disadvantages of the technique were discussed.

Dr. Sykora is an associate professor, Division of Removable Prosthodontics, Faculty of Dentistry, Dalhousie University, Halifax, N.S. B3H 3J5. Reprint requests to Dr. Sykora.



Fig. 5. Buccal view of the refractory cast showing the wax-up direct retainer arm through the created embrasure engaging the buccal surface of the second bicuspid abutment.



Fig. 6. Buccal view of the completed framework showing the direct retainer arm through the created embrasure engaging the buccal surface of the second bicuspid abutment at the try-in stage.

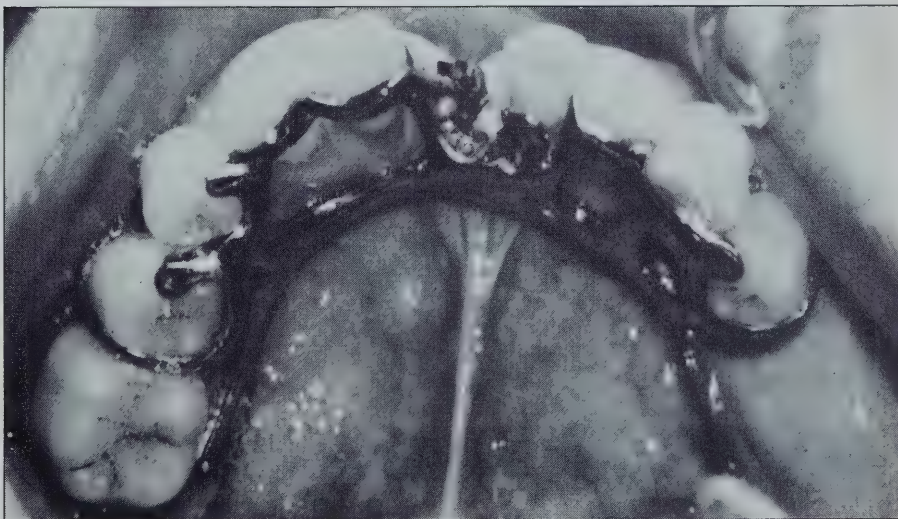
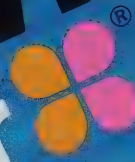


Fig. 7. Occlusal view of the completed framework at the try-in stage.

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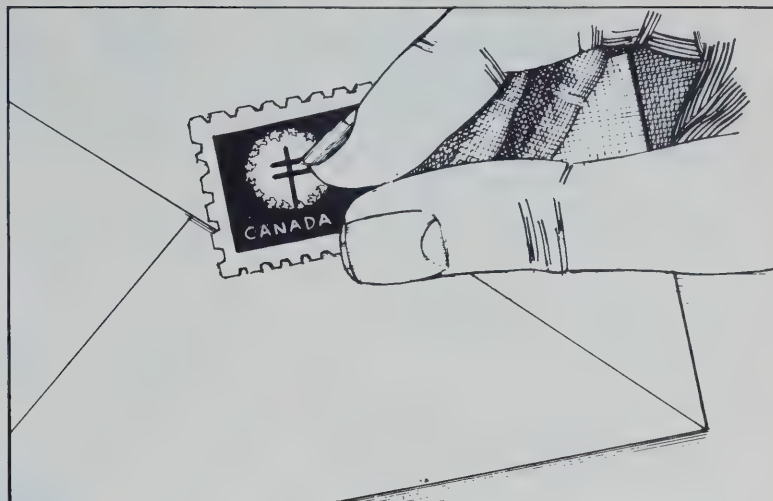
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CORRECTION

In the May 1985 issue, (Vol. 51, No. 5, 1985) cropping of photographs in the article entitled "Cervical Spondylosis found on Pantomographs" by A. Ruprecht et al, resulted in some confusion.

The two photographs in question (Figure 1 and Figure 2) are reproduced here in their entirety for the information of our readers.



Figure 1. The area of ankylosis involving C-3 and C-4 is seen on a routine orthopantomograph.

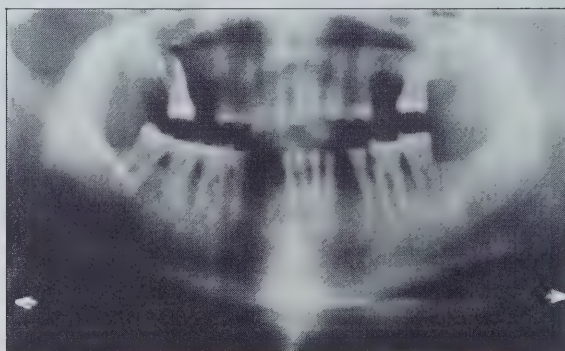


Figure 2. The area of C-3 and C-4 shows the vertebral abnormality associated with Forestier's disease.

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FOR COMMUNITY PROGRAMS

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Presentation made at the CDA National Conference on Dental Caries Decline, McGill University, February 1-2, 1985

DISCUSSION

The decline in dental caries in developed nations of the world has been well documented.^{1,2} Although no national survey has occurred and only limited data are available in Canada, existing evidence from Ontario, Quebec and British Columbia suggests that a similar decline may have occurred in most areas of Canada as well.^{3,4,5} Not unlike the findings from the United States, available data demonstrate notable differences in caries prevalence between provinces in Canada^{4,6,7,8,9} (Table 1). Data from Table 1 also suggest that caries prevalence in Alberta, Manitoba, Quebec and the Maritime Provinces may be higher than in Ontario. Quebec adolescents appear to continue to experience a higher prevalence of dental caries, however, evidence suggests that further reductions may now be occurring for younger children in Quebec.¹⁰ Reasons to explain decreases in prevalence centre around the increased use of various fluoride preventives, both in the home and at the community level, and to improve-

ments in diet and home care. The principal consideration in this paper focuses on the impact of these changes on the expectations for traditional methods of caries prevention. In particular, how cost-effective are fluoride preventives at the community level in the 1980s? Is compliance a problem? How well are these programs working? And last, are these methods safe?

The task of reviewing and summarizing this literature is difficult for several reasons. Most important, relatively little clinical research is available to evaluate some of the currently popular fluoride procedures. Furthermore, many of the studies are now dated, having occurred when there was considerably more dental caries to prevent. Additionally, many potentially important studies have relied on research designs that utilize historical controls. The principal difficulty with this methodology lies in differentiating between treatment effects and the secular decline in dental caries.

The four procedures that will be assessed in this paper are: community water fluoridation, school water fluoridation, daily fluoride tablet programs in schools and weekly fluoride mouthrinsing programs with a 0.2 per cent NaF solution. Professionally applied topical fluoride agents will not be addressed because evidence suggests that only modest reductions can be anticipated from semiannually applied topical

fluoride agents.^{10,11} What place these procedures may have in programs for targeted or otherwise high risk children or those participating in a sealant program, remains open to further investigation. Currently there is no acceptable way with which to identify those high risk children,¹² though future research may prove more successful.^{13,14} Use of professionally applied topical fluoride agents in private practice is another question, especially in nonfluoridated communities. In light of different cost and ethical considerations in this setting, the procedure should continue to be encouraged.

For each of the forementioned procedures, an estimate of effectiveness will be developed, implementation of each procedure within the community and/or school will be determined, and safety considerations will be reviewed. The second issue will focus on different aspects of status, compliance, participation, and surveillance. Last, estimates of cost-effectiveness will be made for each procedure. These analyses are used to establish the cost to save one DMF tooth surface. The approach however, tends to overestimate benefits until maximum caries reductions are realized. In the case of water fluoridation for example, this time period has been estimated to be ten years.¹⁵ The prediction of caries incidence used in these calculations will be based on data from

TABLE 1

Caries Prevalence for 13-14 year old Children in Selected Provinces throughout Canada

PROVINCE OR REGION	YEAR OF SURVEY	AGE	MEAN DMFT
MANITOBA	1976	13*	4.57
		13+	6.78
ALBERTA	1978	13	4.74
		14	5.37
ONTARIO	1978	13-14*	3.72
		13-14*	4.94
NEW BRUNSWICK	1982	13-14	5.04
NEWFOUNDLAND	1982	13-14	5.86
NOVA SCOTIA	1982	13-14	5.72
QUEBEC	1984	13-14	6.00
* Fluoridated			
† Non-fluoridated			

TABLE 2

Caries Experience for Children in Selected Provinces throughout Canada by Age and Exposure to Fluoridated Water

Province or Region and Year of Survey	MEAN DMFT SCORES		Percentage Difference
	Fluoridated	Non Fluoridated	
Quebec — 1977*			
Age 13-14	6.9	9.5	27.6
Alberta — 1978*			
Age 13-14	4.6	5.2	11.5
Ontario — 1978*			
Age 8-9	1.3	1.9	34.2
Age 13-14	3.7	4.9	24.7
Manitoba — 1976			
Age 9	2.5	2.9	13.8
Age 13	4.6	6.8	32.4
Maritime Provinces			
Age 6-7	3.9	5.0	22.0
Age 13-14	4.7	5.6	16.1
*No residence history taken			

TABLE 3

Controlled Fluoridation in Canada by Province

Province or Territory	Population Served			1983 Percentage of total Population
	1977	1980	1983	
Newfoundland	49,735	44,253	41,846	7.3
Prince Edward Island	20,843	22,073	21,573	17.6
Nova Scotia	332,155	348,763	348,763**	41.1
New Brunswick	82,623	83,159	88,691	13.1
Quebec	753,628	1,101,705	651,907	10.1
Ontario	5,063,219	5,142,558	5,278,324*	61.4
Manitoba	665,688	688,321	739,366	67.9
Saskatchewan	330,630	301,199	306,283	31.6
Alberta	767,481	765,515	973,242*	42.9
British Columbia	287,099	324,135	350,601	12.4
Yukon Territories	11,600	13,781	13,781	59.5
Northwest Territories	18,472	19,280	24,269	53.1
Total	8,383,373	8,859,787	8,838,646	36.3
* 1982 Data				
** 1980 Data				

recent Canadian studies.^{6,7,8,9,10} Analysis will calculate high and low end estimates based on varying caries incidence for school aged children living in nonfluoridated communities. Increments used in analyses will therefore be 0.8 and 1.3 decayed, missing or filled tooth surfaces per child per year. Analyses will also assume a steady state condition, where benefits and costs will remain unchanged over time. Although this is the traditional approach used for these types of analyses, projected benefits over longer periods of time are valuable and can be established by discounting costs and benefits occurring in different years to present values.¹⁵ Discounting reflects the fact that one dollar in the future is worth less than a dollar in the present. Similarly a future benefit must be discounted to the present if current dollars are being spent to obtain that benefit. Because this approach is used too infrequently for many to be familiar with it and is reasonably complicated, it is inappropriate for this paper. However, readers should be aware that cost-effectiveness ratios tend to increase when prospective analyses are performed when compared to the steady state approach.

Community Water Fluoridation

Controlled water fluoridation remains the safest and single most cost-effective means of preventing dental caries. It has the advantage of reaching all those served by public water systems in addition to the effects that come from food processing and bottling of beverages using fluoridated water. Concerns of individual compliance are unnecessary because intake of water is relatively constant from one individual to another over time ensuring optimal dosage.

Evidence that reflects the effectiveness of water fluoridation in Canada comes from various sources. First, several surveys have compared caries prevalence between fluoridated and non-fluoridated areas in Canada.^{4,6,7,8,9} The results from these provincial and regional surveys are presented in Table 2. Reductions in caries prevalence in fluoridated areas compared to non-fluoridated regions range from a high of 34.2 to a low of 11.5 per cent fewer decayed missing and filled teeth. A problem encountered with some of these data is the failure to determine residency status of individual children. Thus some children who were born and raised in non-fluoridated areas may have recently moved to a fluoridated community, and are thought to represent someone who grew up with exposure to systemic fluorides. The opposite situation also occurs, thus obscuring the actual benefits derived from consuming fluoridated water. Because of ever increasing mobility of the population throughout North

America, the reductions in **Table 2** are thought to represent conservative estimates of the benefits derived from community water fluoridation.

Stamm and Banting also examined the benefits of water fluoridation to adults.¹⁶ In Woodstock (0.1 ppm F) and Stratford, (1.6 ppm F) Ontario, they compared the percentage of adults with root caries and/or fillings. These findings demonstrate that life-long exposure to fluoridated water can reduce root caries by about 50 per cent.

From the available Canadian data it appears obvious that the traditional predictions of from 50 to 70 per cent reductions from consuming fluoridated water are perhaps unrealistic today.¹⁷ Alternatively, caution must be exercised in evaluating the existing data on the topic. First, underestimation of these benefits could produce perhaps an overly conservative prediction. Second, it is readily apparent that many supposedly fluoridated communities in Canada are not being adjusted and monitored properly and are consequently under-fluoridating, sometimes by significant amounts.^{18,19} This topic will be addressed in greater detail in the next section of the paper but suffice it to say that the potential benefits to be derived from community fluoridation are not being realized in many areas of Canada simply because of the failure to maintain recommended concentrations of fluoride. Despite these surveillance problems, water fluoridation in Canada can be expected to reduce dental caries by 40 per cent. With improved programs of surveillance, greater reductions may occur in areas with still high levels of dental caries.²⁰

Another concern of the public health sector in Canada is the current status of water fluoridation. This situation is detailed by province in **Table 3**. Particularly depressing is the fact that fewer Canadians are receiving the benefits of fluoridated water today than in 1980.²¹ In particular, population growth in many large fluoridated communities obscures the fact that fluoridation has been stopped in numerous areas in the last three to four years. One significant loss is Quebec City which has not been adding fluoride to its water for the past few years. The process is supposed to commence again soon, after a simple repair of a fluoride-containing tank. Perhaps more important, essentially no growth in fluoridation has occurred since the early 1970s and the situation seems likely to continue. Reasons to explain this failure are many, but the most obvious stems from the failure of any central force or agency to promote fluoridation. Take for example, the recent gains in the United States.²² Personnel from the Centers for Disease Control within

the program for Fluoridation Activities were instrumental in those accomplishments. Seemingly no such commitment has been made at the federal level in Canada. Until such time, there seems little chance to improve this dismal situation. Another important explanation for the lack of progress for fluoridation in Canada can be found in what is being termed "the information gap." A recent survey indicated that a considerable lack of consistency exists between dental researchers, dentists and the public, relative to the perceived importance of fluorides in the prevention of dental caries.²³ Clearly the dental profession has failed to inform the public about effective means of preventing dental caries, but perhaps more important, dentists themselves are not aware of the fact that fluorides are the single most important means of preventing dental caries.

Another serious problem with the process of fluoridating public water supplies was mentioned earlier and pertains to the maintenance of recommended concentrations of fluoride in adjusted systems. Eklund and Striffler have investigated this problem and estimate that under-fluoridating by 50 per cent can in turn reduce the benefits of fluoridation by approximately 50 per cent.²⁰ Although the extent of this problem in Canada is not well documented, evidence from the United States suggests that there were serious problems in many regions during the 1970s.²⁴⁻²⁶ Consequently, many state and local health departments began monitoring water systems and these surveillance programs have apparently improved the situation.^{27,28} In preparation for this paper provincial and regional dental directors throughout Canada were surveyed to determine the status and monitoring of community fluoridation programs. In nearly every instance, serious problems in maintaining recommended levels of fluoride were identified. In only a few areas were data actually made available.^{18,19} In one of these regions in 1979, 31 of 39 water systems were fluoridating at 0.8 ppm F or higher. In the remaining eight systems, the concentration of fluoride ranged from 0.3 to 0.76 ppm F. The optimal concentration for these water supplies is 1.2 ppm F, thus reflecting the extent of the problem.

Surveillance research in the United States has identified three types of variation in fluoride concentrations in public water systems; first, is the variation across time in a single system; second is among different distribution points at one time in a single system; and third among multiple sources in each city.²⁷ Accurate surveillance programs then must include periodic collection of samples at different distribution points within existing systems. In Canada, respon-

sibility for these programs must originate at the provincial level, but the day-to-day collections must be made by local public health personnel. Complacency by the public health sector and the dental profession alike have contributed to this problem, but it represents one area where a solution does exist. Surveillance programs can be organized and implemented and they can help to ensure the maintenance of near optimal levels of fluoride in existing systems.²⁸ Legislation must also exist that forces compliance with recommended standards. If the laws can't be enforced, continued optimal adjustment of some water systems seems unlikely.

School Water Fluoridation

In 1980, there were 500 schools in the U.S. that adjusted the level of fluoride in their water systems to a concentration of about 4.5 ppm F.²⁹ Despite the popularity of this means of prevention in the U.S., little research exists with which to evaluate the procedure. Because of the actual method of delivering systemic fluorides in schools, certain research design limitations inherently exist. Of the studies summarized in **Table 4**,³⁰⁻³² two are almost 20 years old and all utilized historical controls. Furthermore only one study tested the preventive effects of what is now considered to be the proper concentration of fluoride. Despite limitations in research design and the secular decline in dental caries, the data point to the effectiveness of the procedure. More important, the benefits of this procedure will continue at least to some extent on into adulthood because of the systemic action of fluorides. Understanding that continued benefits can be derived, a reduction in dental caries of 25 per cent can be anticipated from school water fluoridation.

The advantages of school water fluoridation include good teacher cooperation and student participation, and the systemic exposure of fluoride. The limitations or disadvantages of the procedure centre around the intermittent exposure children receive, the fact that there are no benefits until the age of five and problems in maintaining optimal, yet safe levels of fluoride in existing systems. This last point cannot be emphasized enough. Unless systems are properly operated, problems can occur. Additionally, the concentration of fluoride in individual water supplies must be assessed to determine if some children are already acquiring adequate amounts. Regardless of these problems, in certain states in the U.S., school water fluoridation has been a sensible and effective alternative to other means of caries prevention. In rural or remote areas where community fluorida-

tion is impossible, or in areas where antifluoridation sentiment has blocked efforts to fluoridate community water supplies, school water fluoridation should be considered. From a survey of provincial and regional dental directors it appears as though the concept may be implemented in Canada in the near future.³³ In areas where caries levels are high, properly monitored school fluoridation programs will be effective.

Those considering school water fluoridation in Canada can again learn an important lesson from the U.S. experience. On three reported occasions, either operator or equipment problems created situations of acute fluoride overdoses.³⁴⁻³⁶ In each instance either students or those using the school water supply were temporarily sick. Although recovery was complete and quick in every instance, the problems that created these situations can and should be avoided. First, proper monitoring of programs must exist and function as planned. This includes routine surveillance of the concentration of fluoride in the system as well as regular checks of the system by experienced water works engineers. Second, local school personnel who are responsible for the day-to-day operation of these systems must be well trained and adhere to the operational regulations for these systems. Last, time proven fluoridation systems must be used. Compromises in equipment because of budgetary constraints cannot be justified if proper adjustment cannot be guaranteed.

Fluoride Tablet Programs in Schools

Currently, in some provinces, fluoride tablets are used as a method of caries prevention in school programs. However, the effectiveness of these programs is again difficult to predict based on existing research. Although the concept of fluoride supplementation has received considerable attention from the research community, little recent research is available. Despite certain problems, the results from one controlled clinical trial are summarized in Table 5. Although the rate of attrition and the caries incidence were high, the study does demonstrate the effectiveness of this procedure. Fluoride tablet programs also provide long-term benefits because of the systemic exposure to fluorides.³⁷ Consequently, a predicted 25 per cent reduction can be anticipated from fluoride tablet programs in schools given adequate teacher cooperation and reasonably high levels of dental caries experience. To maximize these benefits, programs should begin as soon as possible, preferably at preschool level, and should continue until children are about 13 years old.

The implementation of fluoride tablet programs in schools has several advantages. First, supplements can be administered and supervised by classroom teachers and the procedure is quick, easy and usually well accepted by teachers and students. Little time is required, resulting in minimal classroom interference. Alternatively, the pro-

gram requires continued cooperation by teachers and school administrators, thus necessitating constant promotion from public health personnel. In addition, supplementation does not routinely continue during summer vacations, holidays or weekends, and as with school water fluoridation exposure, doesn't generally occur until children reach school age. Safe storage of tablets in an inaccessible location within the school is also essential. No more than about one week's supply for 24 children should ever be stored unlocked in the classroom.³⁷ Of additional importance, students should not be receiving any systemic fluorides at home, either in the form of tablets or from an individual family water supply.

Fluoride Mouthrinsing (FMR)

Currently the most popular method of caries prevention in schools across Canada appears to be fluoride mouthrinsing (FMR) with a neutral 0.2 per cent NaF solution. Reports from the U.S. indicate that from three to 12 million children are receiving the benefits of this preventive measure.^{38,39} Although the actual number of children participating in FMR across Canada is not known, several provinces have implemented comprehensive programs.³³

Recently, however, the effectiveness of FMR has been questioned in the U.S.^{40,41} Results from the National Preventive Dentistry Demonstration Program in non-fluoridated areas showed modest reductions of 0.44 for fifth graders and 0.21 DMF-surfaces for first and second graders saved after four years, therefore saving only 0.12 and 0.05 DMF surfaces per year respectively.⁴¹ Results from fluoridated areas produced even lower actual tooth surface savings (of 0.29 and 0.03 DMFS after four years) resulting in even lower efficiency ratings for these programs.⁴⁰

In Canada results from the Sherbrooke-Lac Megantic fluoride mouthrinsing study look different than those from the National Preventive Dentistry Demonstration Program (Table 6).⁴² Although these results are not from a national sample, they can be used to predict effectiveness for areas with similar levels of caries experience. For children initially in first grade the adjusted tooth savings per year after 24 months were 0.42 DMFS and 0.60 dfs, or 34.2 and 57.5 per cent respectively. Although the savings in the deciduous dentition do not represent the same long-term advantages as those in the permanent dentition, in many areas of Canada where provincial dental service programs exist the dollar savings would be considerable. Therefore, these savings are included in the discussion, though one can not anticipate continued

TABLE 4

Effectiveness of School Water Fluoridation: Mean Caries Prevalence Scores Between Baseline and Follow up Surveys

Study Location/ Length	Fluoride Level	Age of Children	Mean Caries Score Baseline	Mean Caries Score Followup	Percentage Difference
Pike County, Ky 1957-66 (30)	3.0ppm	6-17 years	7.17 DMFT	4.58 DMFT	36.1
Elk Lake, PA 1958-66 (31)	5.0ppm	6-17 years	13.51 DMFS	8.13 DMFS	40.0
Seagrove, NC 1968-80 (32)	6.3ppm	6-17 years	11.93 DMFS	6.26 DMFS	47.5

TABLE 5

Caries Preventive Effects of a Fluoride Tablet Program in a Primary School

	Duration of Study/hrs	DMFS Tooth Surfaces saved/yr	Percentage Reduction
Driscoll et al., 1978	5 1/2	0.37	28.0
Driscoll et al., 1979*	7 1/2	0.49	32.2
Driscoll et al., 1980*	9 1/2	0.40	25.5

* Post treatment benefit — study only lasted six years. Attrition rate of approximately 67 per cent (1979).

benefits as these children proceed further into the mixed dentition stage.

Participation of eligible children in fluoride mouthrinsing programs ranged from 62 to 87 per cent in recent studies^{39,43} and the results of one study indicate that the proportion of those participating decreases as age increases. In the National Prevention Dentistry Demonstration Program, investigators kept detailed records on the actual per capita use of mouthrinse solutions. From the various sites of the study the percentage of actual compared to projected use of mouthrinses ranged from a high of 116 to a low of 48 per cent.¹¹ These results point to the problem of poor teacher and/or school administrator compliance in some of these programs and indicate the need for continual follow up by enthusiastic public health personnel. If one might look to the future, it might be safe to assume that this could be a growing problem especially in Canada where labor relations might already be strained in some communities. Compounding the problem still further is the situation where rinses are provided at school for use at home. In this instance compliance is the responsibility of parents and children. Routine use of rinses under these circumstances probably would not occur for many children.

Because some of the solution from FMR may be accidentally swallowed, safety considerations should be addressed. After a thorough review of this topic, Mellberg and Ripa suggested that ingestion depends on age and the actual amount of solution used, but rarely exceeds 20 per cent, regardless of the volume used.⁴⁴ For weekly FMR this would produce a maximum estimated ingestion of 1.8 mg of fluoride. No evidence exists which indicates that infrequent ingestion of this amount for this age group would cause any problems. Despite this margin of safety, FMR is not currently recommended for preschool or kindergarten children. Perhaps the most serious concern that the profession in Canada should address relates to the over-the-counter sale of the 0.2 per cent weekly NaF mouthrinse. This solution currently comes in 480ml bottles and contains 432mg of fluoride. Considering that the difference in effectiveness between the daily (0.05 per cent) and the weekly (0.2 per cent) rinses is negligible,⁴⁴ there is no reason to sell this product given the potential dangers of acute fluoride overdose. Just as important, storage of mouthrinse solutions in schools should be behind lock and key to prevent any accidental ingestion by curious youngsters.

Cost-effectiveness Calculations

Cost-effectiveness calculations are difficult both because of the lack of agreement in

establishing levels of effectiveness and because of problems in determining actual costs. In particular, indirect costs are often excluded from the calculation. Analyses in this paper will provide estimates of both explicit costs, including monies spent on operation and maintenance of equipment, salaries, repairs and costs of materials and implicit costs where teachers' salaries are also included. One must also recognize that there are advantages beyond tooth surfaces saved for all caries preventives. For example, the anxiety and pain of receiving treatment and the need for replacements for failed restorative work cannot be calculated into the analysis. Additionally, the time interval between expenditures and eventual savings cannot be assessed. Specifically for three of the four procedures evaluated in this paper, systemic fluorides are being used, therefore maximum benefits are not realized for some time after beginning participation. Consequently, existing research may fail to reflect the true benefits of the procedure, and therefore may be underestimated. As mentioned earlier for these calculations, increments of 0.8 and 1.3 DMF surfaces per year per child will be used. Other assumptions are sometimes necessary to derive cost estimates for some procedures, therefore public health administrators must recalculate cost predictions depending on local conditions. This is perhaps best demonstrated in Quebec where teachers' time is set at \$38.00/hour.⁴⁵ Although this seems like an overly high figure, it demonstrates one of the differences that can exist.

Community Water Fluoridation

Community water fluoridation provides lifelong benefits to dentate individuals. Based on recent surveys in Canada, it is estimated that water fluoridation will decrease dental caries by 40 per cent, providing to children with life-long exposure, actual tooth savings of from 0.32 to 0.52 DMF surfaces per year, depending on the annual caries increment. A higher level of protection could be anticipated in regions with still higher caries levels, such as the Northern areas where native populations live.

Costs for community water fluoridation vary depending on the size of the community, equipment and supplies, and the distribution network. Adjusting 1979 estimates from the Ontario Ministry of the Environment to 1984 dollars, costs would range from \$0.16 to \$3.83 including equipment, supplies and operating costs.¹⁸ For large metropolitan areas, an estimated cost of \$0.25 per person per year would be incurred. In a small city, the annual cost could be as high as \$3.50 per person. The cost of saving one DMFS surface would therefore range from \$0.40 to \$10.96

(Table 7), depending on community size, and the mean caries increment. Therefore, water fluoridation would rank as the most cost-effective procedure to prevent dental caries.

School Water Fluoridation

Based on the reductions in dental caries from studies summarized in Table 5³⁰⁻³² and the secular decline in dental caries, it is estimated that school water fluoridation can decrease dental caries by 25 per cent, producing an actual saving that could range from 0.20 to 0.33 DMF surfaces per year per child. Recent cost estimates for school water fluoridation in Quebec range from \$4.00 to \$11.00 per child per year depending on equipment used and assuming that there are 200 children in the school. The cost of saving one DMF surface could range from as low as \$12.00 to as much as \$55.00, depending on the type of equipment used and the caries increment.

Fluoride Tablet Programs

Based on estimates from the study by Driscoll et al,⁴⁶⁻⁴⁸ summarized in Table 5, a 25 per cent reduction, or an actual reduction that could range from 0.20 to 0.33 DMF surfaces per year per child saved can be anticipated from a fluoride tablet program beginning in kindergarten and lasting until children are 13 years old. Explicit cost predictions include the price of tablets and a "questimate" of additional expenses including ordering and distribution of supplies, storage, acquiring consents and supervision of the program. Tablets can be purchased in Canada from Laboratoire BMG Inc. in Quebec for \$8.50 per 1000. Maximum annual projected use would be 175 tablets per child, or \$1.50 per child per year. Assuming an additional \$1.00 per child per year administrative cost, a \$2.50 annual cost per child would be

TABLE 6

Sherbrooke-Lac Megantic Mouthrinsing Study Mean DMFS and dfs Increments for Continuous Participants after 20 Months*

	N	dfs 20 Month Increment	DMFS 20 Month Increment
Mouthrinse**	178	0.74	1.33
Control	247	1.74	2.02
*Reductions of 57.5% little dfs and 34.2% DMFS.			
**Adjusted yearly savings of 0.60 dfs and 0.42 DMFS per child.			

incurred. This prediction assumes a major effort from teachers, therefore good results can only occur if interest and cooperation remain high. The cost of saving one DMF surface would therefore range from \$7.50 to \$12.50 (Table 7). An implicit cost estimate would include two minutes of a teacher's time per day. Assuming a class size of 30, a \$20.00 per hour labor cost, and 70 per cent participation rate in the class, the teacher's time would cost \$5.60 per child per year. These calculations are as follows:

175 treatments/yr $\times$ 2 minutes per treatment = 350 minutes/yr
 70% of children participate, therefore
 $.7 \times 30 = 21$ students
 350 minutes/yr $\div$ 21 students =
 16.7 minutes per child per year
 $\$20/\text{hr labor cost} \times 16.7 \text{ minutes per child per year} = \$5.60 \text{ per child per year}$
 Consequently, the estimated annual cost would be \$8.10 per child, and the cost of saving one DMF tooth surface would range from \$24.30 to \$40.50.

Fluoride Mouthrinsing Programs

A reduction of 25 per cent, or an actual savings ranging from 0.20 to 0.33 DMF surfaces saved per child per year can be anticipated from FMR in nonfluoridated areas in Canada. Different levels of effective-

ness should also be anticipated for different age groups. The results from Sherbrooke⁴² indicate that clinically significant reductions can occur in early primary grades if caries levels are high enough.

Costs for mouthrinsing programs have also received considerable attention. Based on the ranges of costs from the 14 NIDR Demonstrative Programs,³⁹ the cost of FMR can be estimated at \$5.00 per child per year in U.S. dollars, or approximately \$6.50/child/year in Canadian dollars. Therefore the cost of saving one DMF surface would range from \$19.50 to \$32.50, ranking this procedure fourth in the list of cost-effective community fluoride programs. Including the teacher's time in the calculation would increase the total cost by \$4.44, assuming a 36 week year, a \$20/hour labour cost for teachers' time (10 minutes to complete each weekly rinse) and a 90 per cent participation rate. The cost calculations are as follows:

36 treatments/year $\times$ 10 minutes/tx =
 360 minutes/year
 $30 \text{ students} \times .9 \text{ participation} = 27 \text{ students participating}$
 $\$20/\text{hr} \times 360 \text{ minutes/year} = \$120/\text{year}$
 $\$12/\text{year} \div 27 \text{ students} = \$4.44 \text{ per child per year.}$

Therefore, the implicit cost estimate would add \$10.94 per child per year, and the cost

of saving one DMF tooth surface would therefore range from \$32.82 to \$54.70.

Summary

Evidence suggests that in many areas of Canada where caries prevalence has traditionally been quite high, a decline in dental caries may have occurred. Actual proof of this reduction is lacking, therefore speculating about a change in caries prevalence without the benefit of any empirical data is necessary.

Nevertheless, assuming a decline, a summary of the cost-effectiveness estimates for fluorides in community programs is presented in Table 7. Community water fluoridation remains the safest and most cost-effective procedure to prevent dental caries. Unfortunately little or no growth in water fluoridation has occurred in Canada in the last decade. Clearly a national level initiative is needed. Also, public health officials must address the issue of monitoring and surveillance of water fluoridation systems. Evidence suggests that this is a big problem in Canada. School water fluoridation, it seems, is a good alternative approach relative to costs, however, great attention must be paid to educating school maintenance personnel and to purchasing good equipment. Fluoride tablet programs continue to be cost-effective procedures for the prevention of dental caries in non-fluoridated areas where caries experience remains high. Alternatively, in some areas of Canada, caries prevalence data suggest that fluoride mouthrinsing programs may not be a cost-effective approach. Establishing baseline caries levels seems to be necessary to determine the potential efficiency for those programs.

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TABLE 7

Estimated cost-effectiveness for the use of Fluorides in Community Programs

Method annual cost per child	Approximate		Estimated DMF tooth surfaces saved/child/year*		Cost per one DMFS saved	
	0.8 DMFS Increment	1.3 DMFS Increment	0.8 DMFS Increment	1.3 DMFS Increment	0.8 DMFS Increment	1.3 DMFS Increment
1) Fluoridation of Public Water Supplies — 40% Reduction Large Metropolitan area	\$ 0.25	0.32	0.52		\$ 0.78	\$ 0.40
Small city	\$ 3.50	0.32	0.52		\$10.96	\$ 6.72
2) School Water (Low cost) Fluoridation	\$ 4.00	0.20	0.33		\$20.00	\$12.00
25% Reduction (High cost)	\$11.00	0.20	0.33		\$55.00	\$33.00
3) Fluoride Tablet Programs						
25% Reduction	\$ 2.50	0.20	0.33		\$12.50	\$ 7.50
Including cost for teacher's time	\$ 8.10	0.20	0.33		\$40.50	\$24.30
4) Fluoride Mouth- rinse Programs						
25% Reduction	\$ 6.50	0.20	0.33		\$32.50	\$19.50
Including cost for teacher's time	\$10.94	0.20	0.33		\$54.70	\$32.82

*Calculated from the percentage reduction indicated for each preventive method.

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CANADIAN DENTAL ASSOCIATION NATIONAL MANPOWER SYMPOSIUM

October 18-19, 1985

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PROGRAM

Friday, October 18th. Defining The Problem: Nationally & Internationally.

- 8:00 a.m. – 8:15 a.m. Opening Remarks, Dr. Ian Vogan
- 8:15 a.m. – 9:15 a.m. Canadian Manpower Data – An Update, Mr. R.K. House
- 9:15 a.m. – 9:30 a.m. Questions
- 9:30 a.m. – 10:30 a.m. Supply Slide Projections, Dr. Don Lewis
- 10:30 a.m. – 10:45 a.m. Questions
- 10:45 a.m. – 11:00 a.m. Coffee
- 11:00 a.m. – 12:00 a.m. Changing Dental Needs Of The Canadian Population, Dr. Don Lewis
- 12:00 p.m. – 12:15 p.m. Questions
- 12:30 p.m. – 1:30 p.m. Lunch
- 1:30 p.m. – 2:30 p.m. (i) Dentist Unemployment
A Scandinavian Reality, Dr. Rod Moore
(ii) Manpower Issues In The United States
- 2:30 p.m. – 2:45 p.m. Questions
- 2:45 p.m. – 3:00 p.m. Coffee
- 3:00 p.m. – 4:00 p.m. The Manpower Situation In Great Britain And The Commonwealth, Dean Derek Chisholm
- 4:00 p.m. – 4:15 p.m. Questions
- 4:15 p.m. – 5:00 p.m. Panel Discussion, Mr. House, Dr. Lewis
- 6:30 p.m. – 8:00 p.m. C.D.A. Host Reception, Sheraton Center

Saturday, October 19th. – *Strategies And Possible Solutions*

- 8:30 a.m. – 8:45 a.m. Dr. John Silver
- 8:45 a.m. – 9:00 a.m. Mr. John Gillies Corporate Bodies
- 9:00 a.m. – 9:15 a.m. Mr. Don Pamentier
- 9:15 a.m. – 9:45 a.m. Dean Schwartz – A.C.F.D.
- 9:45 a.m. – 10:00 a.m. Dr. Bill Bedford – The Role Of Government
- 10:15 a.m. – 10:30 a.m. Questions
- 10:30 a.m. – 11:00 a.m. Coffee
- 11:00 a.m. – 11:30 a.m. Dean Beagrie – Dental Manpower In The Third World
- 11:30 a.m. – 11:45 a.m. Ms. Pat Johnson – C.D.H.A. Presentation
- 11:45 a.m. – 12:00 p.m. C.D.A.A. Presentation
- 12:00 p.m. – 12:15 p.m. Questions
- 12:30 p.m. – 2:00 p.m. Lunch
- 2:00 p.m. – 4:00 p.m. C.D.A. Panel – The Role of C.D.A.
Vis-à-vis The Problem And The Solution
Open Forum For Discussion

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Announcements

OCTOBER/OCTOBRE

October: Golf at Gleneagles, Atlantic Dental Seminars, Gleneagles Scotland, "Comprehensive Adult Dentistry". Contact: Course Director (North America) 1545 Birmingham St., Halifax, N.S., B3J 2J6.

October: Bell Gouinlock Limited is holding its **Investment Seminar for Women**, every Tuesday evening in October in Toronto. The seminar begins at 6:30 pm and runs until 9:30 pm and costs \$5 per person. For more information, contact Gale Powers, Bell Gouinlock Limited, 416-364-2231.

October 26-November 1: 34th Annual Meeting of the American Academy of Implant Dentistry, University of California, School of Dentistry, San Francisco California. Contact: Mr. John P. Winiewicz, The American Academy of Implant Dentistry, 515 Washington Street, P.O. Box 2002, Abington, Massachusetts, 02351, 617-878-7990.

October 30: The first national and international scientific encounter of the dental schools, during the XVIII National and International Congress of the Mexican Dental Association. Contact: Admgen Ezequiel, Montes 92, Mexico, D.F., 06030 Mexico 915-566-61-33.

October 31-November 2: The 6th International Conference for Orthodontics, Sheraton Hotel, Munich West Germany. Sponsored by Quintessence Publishing Co. Inc. Theme: Adult Orthodontics and Orthognathic Surgery. Contact: Quintessence Publishing Co. Inc. 6 South Michigan Ave, Chicago Ill. 312-782-3221.

NOVEMBER/NOVEMBRE

November 1-5: 42nd Annual meeting of the American Institute of Oral Biology, Spa Hotel, Palm Springs, California. Contact: Executive Secretary, P.O. Box 481, South Laguna, California, 92677.

November 2-5: 126th Annual Session of the American Dental Association, San

Francisco California. Contact: The American Dental Association, 211 East Chicago Ave., Chicago Ill., 60611 U.S.A.

November 7-9: First International Beijing (Peking) Symposium in Dentistry and First International Dental Trade Show. Inaugural theme will be dental materials and their clinical use. Contact: Quintessence Publishing Co. Inc., 8 S. Michigan Ave., Suite 2301, Chicago ILL. 60603, U.S.A. Telephone (800) 621-0387.

November 18-21: American Dental Association, Foods Nutrition and Dental Health Program in co-operation with the University of Texas, Health Science Centre at San Antonio, Dental School, announces a scientific consensus conference on **Methods for Assessment of the Cario-genic Potential of Foods**, University of Texas Health Sciences Centre, San Antonio, Texas. Contact: Dr. Dominick DePaola, Chairman, 7703 Floyd Curl Drive, San Antonio, Texas, 78284, 512-691-6601.

November 22-23: The Ontario Dental Association and the Ontario Academy of General Dentistry will present the Perio Symposium of the Decade. Speakers include Drs. Ron Nevins, Roger Wise, Norton Taichman, Steven Offenbacher, William Becker and Max Listgarten. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ontario, M5R 2P1, 416-922-3900.

November 26-30: Congrès International de l'Association dentaire française. Paris, France, Palais des Congrès. Contact: Secrétariat Général, 92 Av. de Wagram, 75017, Paris, France.

November 28: 1985 Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 30: American Academy of Dental Electrosurgery annual meeting. New York Hilton Hotel. Contact: American Academy of Dental Electrosurgery, 57 West 57th St., Suite 1001, New York, New York, 10019, 212-755-6630.

1986+

January 13-15, 1986: The National Institutes of Health in cooperation with the National Cancer Institute and the National Institute of Dental Research are planning a Consensus Development Conference on the Health Implications of Smokeless Tobacco Use. To be held at National Institute of Health headquarters, Bethesda, Maryland. Contact: Barbara McChesney, Prospect Associates, Suite 401, 2115 East Jefferson Street, Rockville, Maryland, 20852, 301-468-6555.

January 16-19, 1986 — Yankee Dental Congress 11th Annual Meeting, Boston, Mass. "Prescription for Excellence." For information: Massachusetts Dental Society, 36 Washington Street, Wellesley Hills, MA 02181. Telephone: (617) 237-6511.

January 30-February 2, 1986: Health-Com '86, Las Vegas, Nevada, Las Vegas Convention Centre. Highlights computer, telecommunications and information systems specifically for the healthcare industry. Contact: Lin Fish/Pete Sorapar, Fleishman Communications Inc. 312-397-7744.

February 14, 1986: Academy of Dental Materials — Continuing education course on "Titanium", the new alloying element in dentistry. Northwestern University Dental School, 311 East Chicago Avenue, Chicago ILL 60611. Contact: Sybil Greener. Telephone (312) 943-8410. Immediately precedes Chicago Midwinter Meeting.

February 16-19, 1986: 121st Chicago Midwinter Meeting, Chicago Hilton and Towers, Chicago Illinois. Theme is "New Horizons." Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Illinois, 60602, 312-726-4076.

March 1986: The International Orthodontic Conference, Sheraton Rotorua Hotel, Rotorua, New Zealand. Contact: Ron Roberts, Air New Zealand, 151 Bloor St. West, Suite 340, Toronto, Ont. M5S 1S4.

March 2-5, 1986, College of Dental Surgeons of British Columbia, Convention — "Dentistry in Motion" — at Hotel Vancouver. For Information, write to: Dr. Ken Neuman, College of Dental Surgeons of B.C. 1125 West Eighth Avenue, Vancouver, B.C. V6H 3N4.

April 6-9, 1986: International Rehabilitation Week, includes a conference and exhibition at the New York Convention Centre, New York City. Contact: EJJ Management Inc., 225 West 34th St. Suite 905, New York, NY. 10122, 212-563-5461.

April 7-12 1986: 23rd International Dental Show and German Dentists' conference in Cologne, Germany. Contact: Messe-und Ausstellunge-Ges. m.b.h. Koln, Messeplatz, Postfach 210760, D-5000 Koln 21 (Deutz) West Germany.

May 2-4, 1986: The 2nd International Symposium on Periodontics and Restorative Dentistry. Westin Hotel, Boston Mass. Sponsored by Quintessence Publishing Co. Inc. Contact: Quintessence Publishing Co. Inc. 8 South Michigan Ave. Chicago Ill. 60603 312-782-3221.

May 11-14, 1986: Ontario Dental Association 119th Annual Spring Session. The Sheraton Centre Hotel, Toronto. Contact: Diana Thorneycroft, 234 St. George St., Toronto, Ontario, M5R 2P1.

May 21-23, 1986: International Life Sciences Institute, Symposium on Sweetness. International Conference Centre of Geneva, Switzerland. Contact: Symposium Secretariat, Conference Associates ILSI, 27A Medway Street, Westminster, London SW1P 2BD, England.

May 21-23, 1986: Expodent 1986 Trade Fair and Congress for Present Day Dentistry and Dental Technology. Utrecht, Holland. Contact: Royal Netherlands Industries Fair, Postbus 8500, 3503 RM, Utrecht Holland.

June 26-29, 1986: 10th International Symposium on Dental Hygiene. Oslo, Norway. Scandinavia Hotel. Abstracts must be submitted by **November 1, 1985**, to: The Scientific Committee, 10th International Symposium on Dental Hygiene, P.O. Box 438, 1301 Sandvika, Norway. For more information contact either Inger-Lise Bryhni or Elisabeth Olsen Kolbjornsen at the above address.

July 1, 1986: Applications are being accepted for the **Postdoctoral program, Dental Diagnostic Science at the University of Texas**, Health Science Center at San Antonio for the class beginning **July 1, 1986**. Address inquiries to: Office of the Associate Dean for Advanced Education,

The Dental School, The University of Texas Health Science Centre at San Antonio, 7703 Floyd Curl Dr., San Antonio TX. 78284.

July 6-11, 1986: The World Dental Conference, Jerusalem, Israel. Deadline for submission of Abstracts: **March 15, 1986**. Contact: Rifka Boruchowicz or Dalia Raif, convention Co-ordinators, Diamond International Tours Inc, 1183 Finch Avenue, Suite 203, Downsview, Ontario. M3J 2G2, 416-663-9100.

August 24-27, 1986: Canadian Dental Association Annual Convention. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

September 9-12, 1986: International Association of Oral Pathologists in association with the British Society for Oral Pathology — Biennial Congress, Edinburgh, Scotland. Contact: Dr. J.C. Southma, Department of Oral Medicine and Oral Pathology, University of Edinburgh, Chambers St., Edinburgh, Scotland, EH1 1JA.

August 2-7, 1987: Fifth World Congress on Pain, sponsored by the International Association for the Study of Pain. Hamburg, West Germany. Contact: Fifth World Congress on Pain, c/o Hamburg Messe und Congress GmbH, Congress Organization, Postfach 30 24 80, 2000 Hamburg 36, West Germany.



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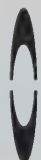
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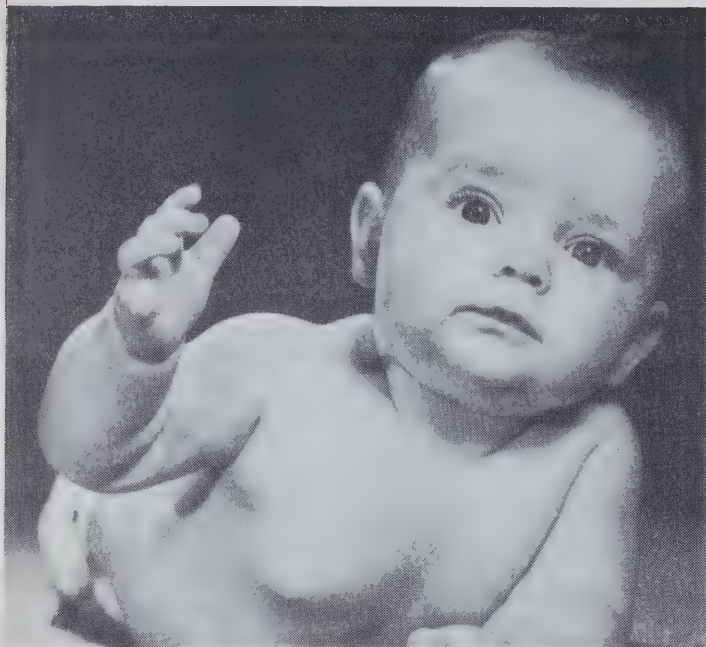
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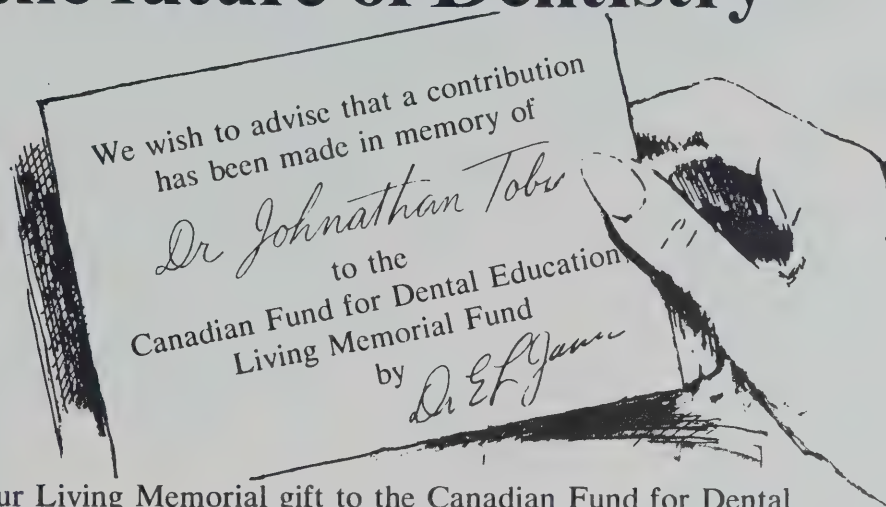
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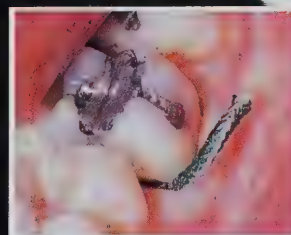
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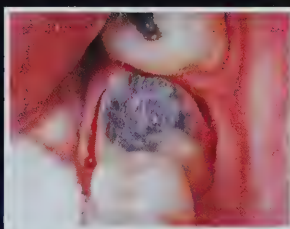
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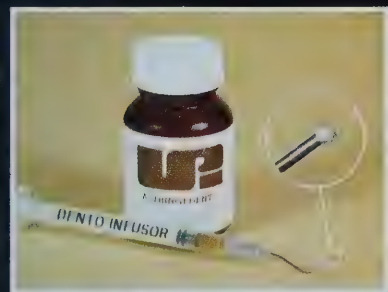
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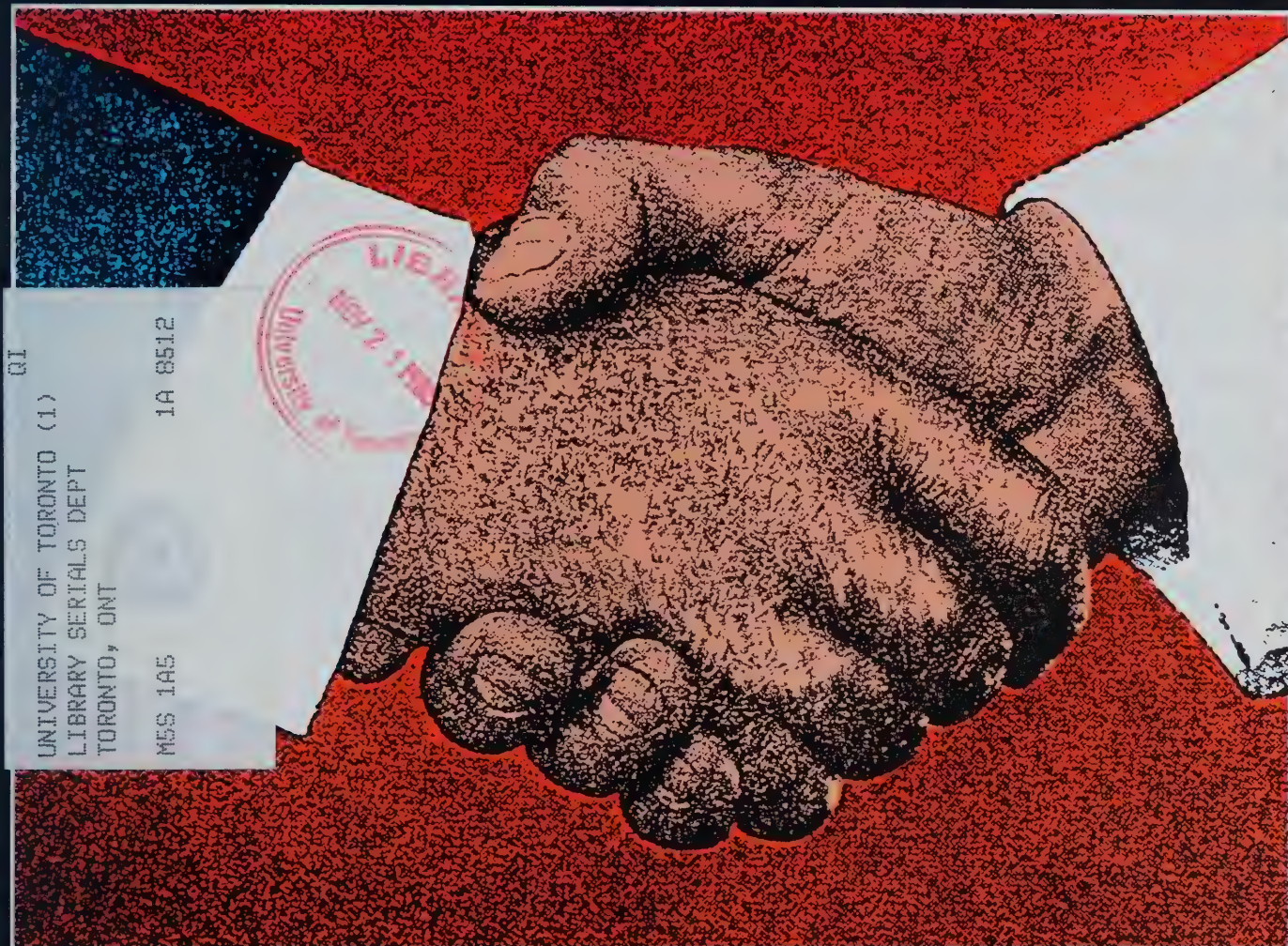
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References: 1. Ostrom, C.A. et al., J Dent Res, 56(3):212-221, 1977. 2. Arends, J., ten Cate, J.M., J Cryst Gro, 53:135-147, 1981. 3. Silverstone, L.M., Caries Res, 11 (Suppl. 1):59-84, 1977. 4. Data on file at Procter & Gamble, Inc. 5. Mobley, M.J., J Dent Res, 60(12):1943-1948, 1981. For further information, please contact Crest Professional Services, P.O. Box 355, Station A, Toronto, Ontario M5W 1C5

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The editor of this Journal urges readers to engage in feedback — free expressions of opinion.

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TALK TO ME!

As you will read later in this issue, the message from the President concerns membership in CDA and the importance of participation.

Participation is not only the bane of Association executives, but also the bane of the editorial breed. Without feedback and participation from the audience for whom an editorial staff creates, the result of that creative process can be downright useless.

Like all of CDA's membership benefits, the Journal depends heavily on the input of as many members and readers as possible. Cross-Canada news, book reviews, letters and articles may all be generated by our readers. An editor cannot live in the Ivory Tower, and should not live there anyway. The editorial staff at JCDA have to get to the source of what is happening in dentistry through our main audience — the CDA members. If our readers/members participate in the Journal, not by just turning the pages and filing it you-know-where, the Journal will continue to improve and grow, perchance to thrive.

Just as our President points out in this issue, the sense of belonging is a hidden benefit of being a CDA member. The Journal is largely a tool creating that sense of belonging. Through these pages the membership keeps in touch with colleagues, events and all things dental in Canada. The Journal, therefore, does not belong to the editorial staff or to the Association, but it does belong to the membership. It is indeed, your Journal — so don't sit back, participate and tell us what you think of every issue.

A great deal of time, effort and thought has been put into updating the Journal. Support for this effort has come from some of our readers, but not from all. Competition is keen in the dental journalism business and the war is not yet won for the Journal. We are aware of the issues in dentistry and we cover them as thoroughly as time and talent will allow. However, we need to know the needs of the readership to make the Journal just another excellent reason for joining the CDA.

In the past, it has been said that the Journal has tried to be all things to all people — not very successfully, according to some. This Herculean task is the dream of every editor — give the readership the best of everything they want.

The readers can help in this task by being both doers and talkers. Every reader cannot contribute time and articles to the Journal, but every reader can at least read the Journal monthly and talk to us. Comment to your editorial staff by letter, poison arrow or Valentine. We don't really care how you tell us — just tell us what it is about this monthly toil that you like or dislike.

New in the October issue was a section called Clinical Features. Many of these clinical articles will be based on table clinic presentations at various dental meetings across the country. It is the hope of the editorial staff that these clinical articles will meet the needs of our readers for less pure scientific material and more practical reading.

We approach this new direction of the Journal's editorial content with enthusiasm and we hope that it will be only the beginning. However, you the readers can help the Journal in its new approach by voicing your opinions.

There is a saying that there are three kinds of people: those who watch what happens, those who make things happen and those who wonder what happened. Over the next few months you may see some changes in the Journal's editorial content. The editorial staff is enthusiastic and we want our readers not to watch what's happening, but to help make it happen so we can leave our competition wondering what happened!

But we need the help of all our readers: so talk to me!

Carolyn Hackland
Editor, JCDA

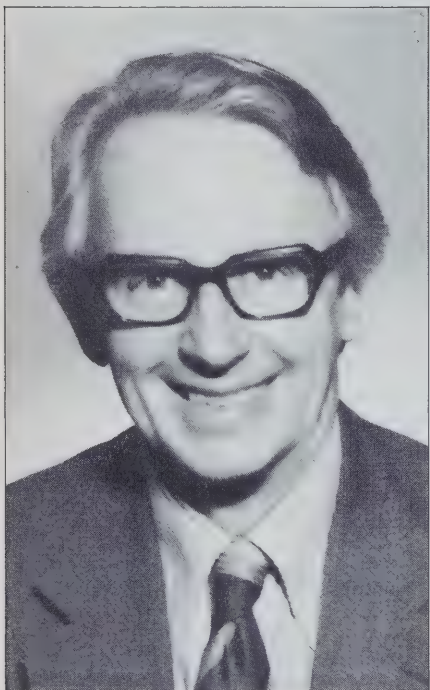
DR. C.R. NEWBURY IS NEW PRESIDENT OF THE FDI

Charles Renton Newbury, CBE, MDSc, FRACDS, FACD, FICD, assumed the presidency of the Fédération Dentaire Internationale at the 73rd Annual World Dental Congress in Belgrade, Yugoslavia in September.

The Melbourne, Australia, orthodontist succeeds Dr. Jean Jardiné of France, who served as President of the FDI for the 1983-85 term.

Dr. Newbury was born in Melbourne, Australia, in 1915, and was graduated from the University of Melbourne in 1945. He attained his Master of Dental Science in 1948. He continued in academic work until in 1951, when he entered specialist private practice in orthodontics.

In 1970, Dr. Newbury was appointed to represent the Australian Dental Association at the FDI World Congress in Bucharest. This was the beginning of his international work which culminated this year in the FDI presidency.



Dr. C. Renton Newbury

He has served on a number of FDI committees, including the scientific, finance, publications and nominations. He was elected to the FDI council in 1975 and as treasurer in 1978. In 1980, Dr. Newbury chaired the special session of the general assembly on "Professionalism", writing the keynote paper and recommendations.

Dr. Newbury has been active in his own Australian Association and in the Asian Pacific Dental Federation.

In 1978, he was honored with the designation, Commander of the Order of the British Empire (CBE) in the Queen's New Year's Honours List.

Dr. Newbury's wife was the founder, in 1963, and current president, of the Australian Dental Wives Association. The couple has three sons, all of whom are in the dental profession.

(A complete report of Congress proceedings will follow in the December edition of JCDA.)

DENTIST, 66, PLANS TO SWIM ACROSS ENGLISH CHANNEL

At 66, Dr. Édouard Dubord of Victoriaville, Québec, is one of Canada's most physically-fit dentists.

Last August, Dr. Dubord might well have won international honors in swimming, had the weather not intervened.

He had hoped to be the oldest person to swim the English Channel in August, but gale-force winds and high waves thwarted his attempts on two dates when the tide and winds were supposed to be most favorable.

Dr. Dubord, who has been active in the Masters swimming program for several years, planned to swim either from Dover to Cap Gris Nez in France, or vice-versa, depending upon the tide and wind direction. The distance is 21 miles, but it is "much farther to swim, because of the tide and current. It is a Z-shaped course," he said.

The University of Montréal dentistry graduate (1945), who continues to maintain an active private general practice in Victoriaville, has competed in many long distance swimming competitions in the past few years.

He told the Journal he used to be a golfer but stopped this activity when he was about 35 and took up swimming. He says swimming offers "a much better physical reward."

The title-holder as the oldest successful cross-channel swimmer was 65 years and 320 days old at the time. Dr. Dubord was 66 on August 14. It appears likely he will try again in 1986 to accomplish the feat and win an entry in the Guinness Book of Records.

ONTARIO HEALTH MINISTRY INITIATES TESTS FOR AIDS

The Ontario Ministry of Health has begun diagnostic blood tests for AIDS at its central public health laboratory in Metropolitan Toronto. The only testing in Canada was previously being done at the federal government's Laboratory Centre for Disease Control in Ottawa.

It was also announced recently that the Province of Ontario will contribute up to \$1 million this fiscal year as its share of the costs of the Red Cross AIDS testing program for blood donors, which began this fall.

Estimated start-up and operating costs of the first year of testing at the Ontario ministry lab in Etobicoke, Ontario, are \$200,000. By late summer, the Ministry of Health laboratory employees had begun necessary preliminary work for the new testing program, including acquisition and testing of the various test materials available. The tests, which will be covered by Ontario's OHIP agency, will be ordered by physicians, who will send blood samples to the central lab.

The laboratory will test for antibodies to the HTLV III virus which is associated with AIDS. Presence of the antibody indicates that the person has been exposed to the virus.

The national advisory committee on AIDS has recommended that this testing be done in a designated provincial facility only, because of the complexity of the testing. The Ontario advisory committee on AIDS, established by the Minister of Health in 1983, recommended that the ministry's central laboratory be that designated facility in Ontario.

The Ontario committee monitors the incidence of the disease, provides advice to the ministry on research priorities and provides advice to health professionals. It will be asked to review the problem posed by AIDS for sperm banks.

"Funding for these two testing programs is part of the ministry effort to combat what has rapidly become a major public health concern. We are also, of course, continuing our support for research into AIDS," Health Minister Murray Elston said recently.

The ministry has to date contributed more than \$700,000 to three separate research projects. About \$625,000 has been awarded to an epidemiological project at the University of Toronto, which is looking at risk factors in acquisition of the disease, while smaller grants have gone to researchers at the Hospital for Sick Children in Toronto, and the University of Western Ontario, for development of biochemical diagnostic tests.

As of July 22, 59 cases of AIDS have been reported this year in Ontario. In 1984, there were 45 cases reported, compared to 13 cases in 1983 and five in 1982.

All cases of AIDS must be reported by physicians to public health officials. It was made a reportable disease under the Health Protection and Promotion Act in 1983.

TOOTH IDENTIFICATION DEVICE FIRM HELPS LOCATE MISSING CHILDREN

Numerous devices are being considered or marketed in the United States to aid in the identification of missing people or accident victims.

The company that makes "Toothprints" as a means of identifying missing children, has just announced a two-pronged contingency plan to expedite searches for youngsters in that program.

"Toothprints" are contoured layered wax wafers and children bite down on these to

record their tooth impressions. Molds of these impressions can be used as a means of identification, in much the same manner as fingerprints. It has been pointed out that no two children — not even identical twins — have exactly the same dental characteristics.

Dental Technologies Inc. (DTI) says it has established a \$3,000 fund from sales of these Toothprints kits to dentists, to assist any parents of a "Toothprinted" child who disappears in publicizing facts about their lost child.

It was learned at the same time that Dr. Stanley Schwartz, Massachusetts state forensic dentist, has volunteered to make plastic molds from the "Toothprint" of any missing child for distribution to law enforcement agencies. Dr. Schwartz and Dr. David Tesini, both of Tufts University School of Dental Medicine in Boston, are inventors of the Toothprinting technology.

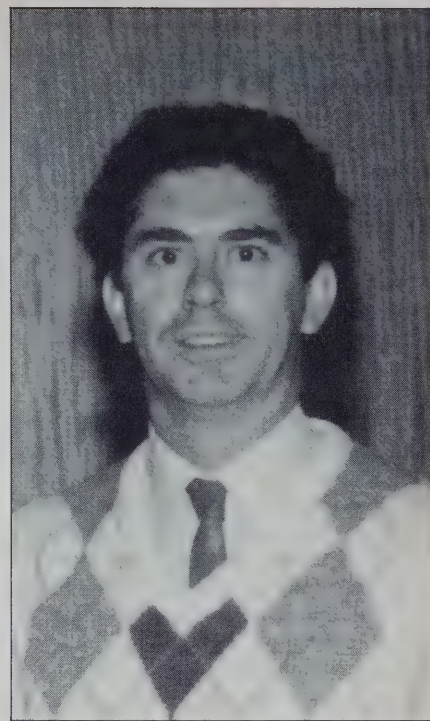
"Coordination of effort is crucial when a child is reported missing, says DTI President Arnold E. Bonk, DMD. "Dr. Schwartz' and Tufts' cooperation means that no time will be lost between a disappearance and getting the dental characteristics out to law enforcement agencies and members of the dental community who are participating in the program."

According to Dr. Bonk, DTI plans call for the development of flyers with photographs of the missing child and the dental mold, which will go directly to dentists across the United States.

"We're finding that many of America's thousands of missing children are abducted by non-custodial parents," Dr. Bonk says. "Usually the custodial parent has some idea where the non-custodial parent resides. By sending the flyer to dentists in those target areas, we can notify them to be on the alert for a child whose dental characteristics match. Non-custodial parents in abduction situations more often than not continue to provide dental care for their children." Runaways — another large segment of missing children — may also conceivably be identified by dentists, if and when they seek dental treatment.

DTI is a joint venture of University Patents, Inc., which patents and commercializes inventions created on the campuses of its university clients, and the Globus Growth Group, Inc., a business development company.

Estimates are that between 500,000 and two million children are currently listed as missing in the United States. DTI states it has distributed about 6,000 Toothprint kits to dentists across that country. By October, DTI hoped to begin producing 250,000 of the kits, in conjunction with Dentanomics, a Scottsdale, Arizona-based company.



Dr. T.C. (Tom) Larder

DR. T.C. LARDER HEADS NOVA SCOTIA ASSOCIATION

Dr. T.C. (Tom) Larder, an endodontist in Halifax, has succeeded Dr. George Zwicker as President of the Nova Scotia Dental Association.

A DDS graduate from the Faculty of Dentistry, Dalhousie University, in 1975, Dr. Larder earned a Certificate in Endodontics at Tufts in 1977.

He has served as a faculty member at Dalhousie and became active with the Nova Scotia Dental Association and the Halifax County Dental Society since graduation in 1977.

Dr. Larder was elected President of the NSDA in June of this year.

Objectives

Among the major issues he hopes the Association will be able to deal with and resolve during his year in office will be negotiations with policy makers of the provincial Children's Dental Plan, to maintain a comprehensive and fair program.

A major review of the intra-oral duties of dental assistants is also scheduled to take place during his term of office. The objective of the review, he explained, is to investigate and assess the role of these auxiliaries to ensure that their role fully complements today's style of dental practice.

Dr. Larder said he also plans to set up a special task force to investigate the concept of incorporation of dental practices in Nova Scotia.



CONCERN FOR FIDO'S CANINES KEEPING VETERINARIANS BUSY

Interest in the health of canines' canines is growing by leaps and bounds these days.

In veterinary clinics throughout the United States, according to an account in a recent edition of the ADA News, there is an increased public concern about the oral health of their domestic animals — dogs and cats. The article estimates that there are 55 million dogs and 52 million cats in that country.

Veterinary organizations are giving much credit to organized dentistry's concentrated public awareness programs for the upsurge in interest.

There is another factor: a growing manpower surplus in the field of veterinary medicine has given impetus to the expanded services. The result of this is that when the family pet is taken to the clinic for protective shots or an examination, a dental prophylaxis is likely to be recommended by the veterinarian.

A veterinary teaching hospital director in Colorado has commented that "dentistry is an area we've not done to the best of our ability because we thought the client was not interested and would not pay for that service. We've now found that the client is interested and **will** pay," he said.

Some veterinarians attribute this to an upturn in the economy in the U.S. "Trends in veterinary medicine are about six months ahead of general economic trends," one practitioner noted. "Pets are a luxury. As the economy improves, people pay more attention to their animals," a professor of veterinary medicine told ADA News.

Dennis McCurnin, DVM, a veterinary educator, gives the ADA public education program on oral health, full marks for this interest. "Owners are now aware of problems in the oral cavity, and we have to give credit to the American Dental Association and its public education program on oral health. It's gotten people to flip back Fluffy's lip, take a look inside, and see whether it's a disaster area in there," said Dr. McCurnin.

Early curriculum subject

A spokesman for the American Veterinary Dental Society states that dentistry has been a part of the veterinary school curriculum since the turn of the century "when the horse was a vital part of the economy." Interest appears to have declined when the importance of the horse did.

Within the past five years, there has been a new wave of interest until now, it is at the highest level in the history of veterinary medicine. The president of the American Veterinary Dental Society, Gary Beard, DVM, said that "five years ago, about the

only dentistry that veterinarians were doing was simple dental prophylaxis. Today, I'd say that counting prophylaxis, endodontics and periodontics, dental services may account for 10 to 15 per cent of gross incomes for veterinarians whose practices are at least 50 per cent small animals."

In addition to clinical services, veterinarians are also advising owners on a program of home tooth care. This includes advice on brushing side to side at the pet's gum line with an infant toothbrush or soft cloth. Toothpaste is not part of the regimen, because animals don't get enthused about the taste or the typical foaming action. However, a flavored veterinary toothpaste actually is available. Some dogs find the compound so tasty they will lick it off the brush.

Special instruments

The upsurge in interest has resulted in the provision of special instruments. Dental equipment producer Henry Schein, Inc., has expanded its veterinary dental line to include more sophisticated instrumentation. The most popular of these new products is a compact, autoclavable, electrically-powered handpiece. This has a range of speeds applicable for a variety of procedures. It will operate as low as 1,500 rpms for polishing and up to 30,000 rpms for such procedures as sectioning multi-rooted teeth for extraction. The fact that it is electrically powered is significant, a Schein firm spokesman noted. It becomes a practical tool for the veterinarian because it does not require an air compressor or other extra equipment for operation.

The Schein company has also designed endodontic instruments particularly to treat the longer, wider pulp cavity of the canine teeth. One example is the 55 mm veterinary dental file, which is nearly twice as long as the longest file for human endodontics — 28 mm.

It was noted that even orthodontics is being offered in some veterinary practices. Dr. Beard says "I've placed hundreds of orthodontic appliances in dogs. Only three of them have refused to accept it," he said. "Our biggest problem is not the dogs, but the owners — getting them to keep the appliance clean. I understand from my dentist friends that they have the same problem with their (human) patients."

Dentists are instructing

The boom in veterinary dentistry has caught the veterinary colleges off guard. That part of the curriculum has not been keeping pace with new developments in dental care for pets.

Dentists have been stepping in to offer instruction.

A Denver, Colorado dentist and American

Kennel Club show judge, Dr. Peter Emily, has developed and offered for the past three years, a one-semester course in veterinary dentistry to senior veterinary students at Colorado's State University.

Dr. Emily says he covers "periodontics, endodontics and dental anatomy. There's not enough time to cover everything." When students complete the semester, they have been exposed to ultrasonic tooth scaling, root planing, polishing, and irrigation.

Dentists who might get involved because they find the field of animal dentistry intriguing, have been warned that their role is limited by law to that of an advisor or consultant. State veterinary practice laws entrust the treatment, diagnosis and prevention of animal diseases or defects — which includes dental problems — exclusively to licensed veterinarians. The only exception is the dentist's own dog or cat.

Similar trend in Canada

A similar trend has begun in Canada, according to Dr. G. Sumner-Smith, Professor of Surgery, Ontario Veterinary College, University of Guelph.

"We've taught some dentistry here for several years — routine eprocedures such as prophylaxis and extraction, but there's been quite an upsurge of late," he told this Journal.

It has reached the point where one veterinarian in Toronto now specializes in dentistry for small animals, the Professor said.

"We're drawing on the expertise of dental surgeons. I was taught procedures by an orthodontist," he said.

The economy also has a bearing on the development of the interest in pets' dental health in Canada, an Ottawa veterinarian said. But because this country's economy is not rebounding to the extent it is in the United States, development has not been as rapid in most parts of Canada.

Veterinary medicine has become "much more sophisticated over the past 20 years and the same is now beginning to happen in dentistry for domestic animals," Professor Sumner-Smith noted.

An indicator of the fast-growing interest is that there have been three textbooks on the subject published in the past 18 months, "instead of just a chapter in general surgery textbooks on the subject of veterinary dentistry," he said.

A great deal of attention is being given to the subject, he stated, because first, it is very interesting, and second, "because there's money in it."

As in dentistry, there is a debate about whether there are too many veterinarians, and "busyness" may be a factor. As in the United States, veterinarians are advising pet

owners to pay attention to the dental health of their animals.

Nutrition and its relationship to the pet's dental health is also getting attention at the veterinary colleges and in practices across the country, the professor said.

Periodontal disease

Professor Sumner-Smith said that caries are not common in dogs, but they do have periodontal disease. "This can now be treated."

Restorative work is becoming more common, he said. Guard dogs become ineffective in this duty if they have a fractured tooth. This happens when they chew stones, etc. "So we do restorative work, and extractions — under anaesthetic."

SPOUSAL RSP — HOW IT WORKS

Peter B. Dennett
Director of Retirement Services,
CDSPI

A spousal RSP is a plan where you make your contributions to a plan that is in your spouse's name.

There are two advantages of a spousal RSP. First, you are permitted the tax deduction from your taxable income. Second, since the plan is invested in the spouse's name, when funds are withdrawn from the plan they will usually be included in the spouse's income.

Spousal RSP's permit you to "even out" the taxable income of both spouses when funds are withdrawn from the plan. If you only have a plan in your name, you will eventually have far more taxable income that, consequently, pushes you into a higher tax bracket. It is good planning to try to allocate taxable income as evenly as possible between you and your spouse by way of "income splitting", and the spousal RSP helps you achieve this. Eventually, when withdrawals are made, they will be taxed in the hands of the spouse who will, presumably, be in a lower tax bracket.

Contributions to spousal RSP's are limited to the same amounts and regulations as normal contributions. In other words, the maximum contribution to a spousal RSP is \$5,500 per year, and if you contribute the maximum to a spousal RSP, you cannot contribute to your own RSP in the same year.

Any unusual additional contributions such as payments from pension plans and retiring allowances cannot be rolled over to a spousal plan, but can only go to your plan. Such special contributions however, do not affect your ability to make a contribution to a RSP and that contribution could go to the spousal RSP.

There are other advantages to spousal RSP's as well:

- Payments from a RSP, received after maturity and when the recipient is 65 years of age or over, are eligible for the \$1,000 Pension Income Deduction. If you and your spouse both have a RSP, you can both take the first \$1,000 tax-free, thereby doubling up on the normal deduction if the spouse did not have pension or RSP income.
- Once you have attained the age of 72, you can no longer contribute to your RSP. With a spousal RSP, as long as your spouse is younger, (i.e., he or she has not yet reached age 72), you may continue to get a tax deduction for contributions to the spousal RSP.

There is one situation where funds from a spousal RSP can be taxed in your hands. This is when you withdraw from the spousal plan in cash (i.e., other than for the purchase of an annuity or other retirement option) for which you have made contributions in the year of withdrawal, as well as the two previous years (see example).

In other words, any contributions of the most recent 3-year period become taxed in your hands. It is important to note that this refers to contributions made to *any* spousal RSP in the past three years. For example, if you maintain two RSP's, one with a bank and one with the CDA, and have contributed each year, but for the last five years only to the CDA RSP, do not be under the impression that you may collapse and withdraw the bank RSP without paying tax. It does not work that way. As long as you have made contributions to *any* spousal RSP, the year in which funds are received from a collapsed spousal RSP, the last 3 years contributions will be taxable in your hands.

Example

Year	Your RSP		Spousal RSP	
	CDA	RSP	Bank	CDA
1980	\$		\$	\$ 5,500
1981				5,500
1982		3,000		2,500
1983			5,500	
1984		5,500		
TOTAL	\$ 8,500		\$ 5,500	\$13,500

Suppose the spouse withdraws \$10,000 from the CDA plan in 1984. You will have to include the following amounts in income in 1984:

- 1984 — none: since there were no contributions made to a spousal plan that year.
- 1983 — \$5,500: this contribution is in the bank RSP, but contributions to *all* spousal plans within a 3-year period become taxable.
- 1982 — \$2,500: you deposited

\$3,000 in your own plan, and since only spousal plans are of concern, your contribution to your plan does not count.

- 1981 — none: since it is past the 3-year limit.
- 1980 — none: since it is past the 3-year limit.

The \$10,000 withdrawal is then claimed as follows — \$8,000 in your (the contributor's) income for 1984, and \$2,000 in your spouse's income for the same year.

If all contributions in the most recent 3 years had been made to your account, the total withdrawal of \$10,000 from the spousal plan would be taxable in the spouse's income for 1984.

There are a number of occasions when the 3-year rule does not apply:

- If either the contributor, or the spouse, is a non-resident when the withdrawal occurs.
- When the contributor dies in the year of the withdrawal.
- If the spouse dies and funds are received by the contributor before the maturity of the plan.
- After a marriage breakdown, *IF* spouses are living apart in accordance with a separation agreement or court order.

There is a key point to keep in mind when you consider opening and contributing to a spousal RSP. Your marriage should be solid, since the spousal plan becomes the property of the spouse. If the marriage breaks up, you *cannot* claim the plan.

In summary, the spousal RSP is an excellent planning and income-splitting device and where a marriage is stable, deserves serious consideration.

The CDA RSP offers spousal plans, and they are as easy to set up as ordinary plans. We can also transfer your plans from other carriers, all you need to do is simply sign your name on the appropriate form, and CDSPI will take care of the paperwork.

The CDA RSP has a full range of investment options, including Fixed Term Deposits at attractive interest rates, and weekly valuation of its investment funds (which simply is not offered by all carriers).

Use your Association's plan. It is designed with dentists in mind, and highly competitive.

The CDA RSP. It's your plan. It's your future. For more information, call the Director of Retirement Services at the following toll-free numbers:

1-800-268-5418 Western Canada,
Atlantic Canada,
Ontario Area
Code 807

1-800-268-3411 Québec and Ontario,
except Area Code 807
497-7117 Metro Toronto



PRESIDENT'S COLUMN

Dr. Brad Holmes

UNITED WE STAND

Each year at this time, membership in the CDA comes up for discussion. Those of us who are closely connected with the organization easily recognize the benefits that accrue to its members. However, I think it is necessary from time to time to list some of the many benefits in belonging to the Canadian Dental Association.

Two of the benefits of belonging to CDA are largely invisible, but highly important for both the present and the future of Canadian dentistry. As the national Association, the CDA can provide members with a powerful voice in government policies which can affect us all. One of the ways in which CDA represents dentistry to government is through the efforts of the Taxation Committee.

This year, the Committee obtained tax benefit improvements for professional management corporations. In recent years, this Committee has also lobbied successfully with government to increase retirement income provisions among self-employed professionals; secured the deduction of reasonable continuing education expenses and secured the removal of a government proposal to impose a tax on premiums for dental insurance paid by employers. While the continuing work of the Taxation Committee benefits every Canadian dentist, by being a member of the CDA, dentists support this effort, make it visible and give it a greater impact. The more dentists that support CDA, the more the government will be inclined to change policies which may adversely affect dentistry in Canada.

Another CDA initiative which will be of enormous benefit to all Canadians, is the Dental Awareness Program. Through this program the public will become more aware of dentistry and the benefits of maintaining good dental health for a lifetime.

However, like the work of the Taxation Committee, the Dental Awareness Program is a CDA initiative which needs the support of every dentist in Canada. Your membership dollars are what enable the program to effectively educate the public through its ongoing activities. The more dentists who are CDA members, the more support the program has and the more it can benefit you and your patients.

A third, visible and very tangible benefit of belonging to CDA is the insurance programs. The insurance package offered to Canadian dentists through CDSPI is a comprehensive one. Though the rates for this package are presently highly competitive, the more dentists that join the plan, the better the rates will be. Support of the insurance plans through your CDA membership enables CDA to negotiate rates of insurance premiums which will remain competitive. As with all of the CDA programs, the more dentists that lend their support through membership, the more beneficial the programs become.

Other smaller, but still valuable benefits of belonging to CDA include receiving both the Journal and the Communiqué; reduced prices for members for all of CDA's patient education pamphlets and reduced registration fees to CDA's annual convention.

A large number of services provided free of charge to CDA members are offered by the CDA's popular Resource Centre. Services which are free to members include Medline literature searches which provide computerized access to over 3000 medical and dental journals; free photocopies of any articles requested; free copies of the articles advertised in this Journal monthly by the Resource Centre on a selected topic, and free monthly tables of contents of leading journals, if requested.

It has been frequently said that an organization is the sum of its parts. This Association is a team effort and we are fortunate to have many exceptional players. The tireless efforts of so many people provide the membership of CDA with significant representation and responsiveness.

Probably the most important membership benefit of CDA is a sense of belonging. The knowledge that we are all part of a strong, viable organization working on our behalf gives us a comfort level and feeling of contentment that we cannot achieve in any other way.

ONTARIO HEALTH RESEARCH COMMITTEE FORMED

The Ontario Council of University Health Sciences and the Council of Ontario Faculties of Medicine recently approved the formation of the Ontario Universities Committee on Health Research.

The Committee has the following mandate:

1. to develop an inventory of Ontario's health science research;
2. to assess periodically the extent and quality of the broad thrusts of health research in Ontario universities and to place these endeavours in the context of international efforts in basic and clinical science and community health;
3. to cooperate with the Health Research and Development Council of Ontario in the identification of those research priorities for Ontario's health system that are of particular interest to and within the responsibility of the Minister of Health;
4. based on these assumptions, to determine the factors limiting the development of health research in Ontario in relation to international, national and provincial needs;
5. to develop strategies to address these limitations and to communicate these strategies to the Health Research and Development Council of Ontario and appropriate federal, provincial and voluntary health agencies;
6. to consider new sources of funding for health research in Ontario and to assist in the development of those links between universities, industry and business that might produce new funding;
7. to recommend cooperative and/or coordinated inter-university research efforts where need and opportunity exist, particularly in the area of application of research;
8. to assist Ontario universities in their communications with the public and media in the area of health research;

The first task of the Committee will be to compile an inventory of health science research in Ontario universities. This overview is expected to help in evaluating the extent and quality of university initiatives in the area of health science research.

The Committee is composed of representatives of medicine, veterinary medicine, dentistry, pharmacy, optometry, nursing, physiotherapy, occupational therapy and communicative disorders.

The Chairman of the Committee is Dr. Charles Hollenberg, Vice Provost (Health Sciences) of the University of Toronto. The Committee's secretariat is at 130 St. George St., Suite 8039, Toronto, Ontario, M5S 2T4, 416-979-2165.

DR. BURTON SCHWARTZ NAMED PRESIDENT OF AGD

Burton Schwartz, DDS, of Norristown, Pennsylvania, was installed as President of the Academy of General Dentistry at its 33rd annual meeting in Detroit.

Other officers who assumed office at the AGD's "Renaissance of Learning" session were: Robert G. Ryan, DDS, President-Elect; Edward D. Barrett, DDS, Vice-President, and Warren L. Lesmeister, DDS, Secretary.

John L. Bomba, DDS, received AGD's Borish Award and James W. Smudski, DMD, PhD, received an Honorary Fellowship.

Dr. Schwartz has been a member of AGD's Board of Directors for more than 16 years. A 1951 graduate of the Temple University School of Dentistry, he now serves there as Clinical Assistant Professor of Dentistry. Dr. Schwartz is chairman of the department of dentistry, director of the dental clinic and director of the general dentistry residency program at Suburban General Hospital in the Norristown area. He has also maintained a private practice in general dentistry there for the past 34 years.

President-Elect Robert G. Ryan, DDS, of Duluth, Minnesota, is a graduate of the University of Minnesota School of Dentistry (1969) and has maintained a general practice in Duluth since 1970. He has been on the staff of St. Mary's, St. Luke's and Miller Dwan hospitals in Duluth for 15 years.

Vice-President Edward D. Barrett, DDS, of Rochester, Michigan, graduated from the University of Detroit School of Dentistry in 1954. He is presently Director of Continuing Education and Alumni Relations, after maintaining a general practice in Auburn Heights until 1984.

ADA President honored

For his dedication to the AGD's goals and ideals, John L. Bomba, DDS, of Havertown, Pennsylvania, received the 1985 Borish Award. Dr. Bomba recently completed his term as President of the American Dental Association and was a former President of the Academy of General Dentistry. He was graduated from the Temple University School of Dentistry in 1946, and has combined his work there as Associate Dean, with a private practice, since 1976.

The AGD is the second largest dental organization in North America and is composed of about 27,000 dentists in the United States and Canada, with a major emphasis on continued education in general practice.

398 Fellowships

The AGD awarded 398 Fellowships and 59 Masterships during the Convocation at the Ford Auditorium in Detroit.

A closed-circuit broadcast of "TMJ: Challenge of the 80s", a two-day course on differing diagnoses and treatments of head and neck pain, was a unique feature of the meeting. Drs. Ronald C. Auvenshine, Harold Gelb and Robert M. Ricketts each selected and treated a TMJ patient they were seeing for the first time.

Philadelphia in 1986

Next year, the annual meeting will be staged in Philadelphia with the theme: "Philadelphia: Spirit of Learning." The session will take place July 11 to 16.

ADA APPOINTS NEW EXECUTIVE DIRECTOR

Thomas J. Ginley, PhD, has been appointed the new Executive Director of the American Dental Association.

Dr. Ginley, the first non-dentist to ever be appointed to the post, is only the sixth executive director in the ADA's 126-year history.

Formerly the associate executive director in policy and planning with the ADA, Dr. Ginley has served the Association for 22 years.

When announcing the appointment, Dr. John Bomba, ADA President, said that Dr. Ginley is widely known as an excellent administrator and effective leader. "He enjoys widespread admiration and respect throughout the profession and the Association."



Thomas J. Ginley, PhD, new Executive Director of the American Dental Association

Dr. Ginley received his undergraduate and graduate degrees in psychology from Loyola University. He joined the ADA in 1963, as director of the ADA Division of Educational Measurement, which conducts the U.S. DAT program. He has also been Secretary of the ADA Council on Dental Education and Commission on Dental Accreditation. He was assistant executive director, Division of Education and Hospitals until 1980, when he went on to be associate executive director, policy and planning.

Dr. Ginley is a native of Chicago, and is a widower with five children.

For all you do
This space is for you.
Rejoin us now.
That's It:
RENEW

The past summer has been one of major achievement for the New Brunswick Dental Society.

The new provincial Dental Act, five years in the making, was passed in the final days of the Legislature in June.

Significant changes include having representation from dental auxiliary groups on the provincial dental board, with full voting privileges. There will now be one hygienist and one assistant on the board.

The Act also allows for incorporation of dental practices in New Brunswick.

A subsection deals with appeals and disciplinary procedures.

The Act is much closer to being all-encompassing in dealing with major issues in dentistry, Dr. W.G. Thompson, the N.B. Society's Executive Director/Registrar told the Journal. "The old Act was 11 pages in length. This one is 44 pages."

The Academy of General Dentistry recently announced that New Brunswick and Alberta were the two newest constituent academies.

New Brunswick joins Ontario and Quebec as an Academy in the parent Academy's Region 15 of eastern Canada. Alberta and British Columbia are the two constituent Academies now in Region 16, western Canada.

Currently the AGD has 27,000 member dentists in various constituent Academies across North America.

The Odontology Section of the Canadian Society of Forensic Science is seeking the help of Canadian dentists.

The Section is presently attempting to compile a list of those dentists in Canada who have ever, even once, worked with the coroner's office in their area on the identification of victims.

If you are a dental practitioner who has ever done such work for the coroner's office, contact: Dr. G.E. Burgman, Chairman, Odontology Section, Canadian Society of Forensic Science, 6288 Clare Cres., Niagara Falls, Ontario, L2G 2E1, or the head office of the Canadian Society of Forensic Science at 2660 Southvale Cres., Suite 215, Ottawa, Ontario, K1B 4W5, 613-731-2096.

The University of Calgary Library is currently, through the work of the Alberta Academy of Periodontics, trying to acquire enough periodontal resource material to set up a periodontics section.

The Alberta Academy of Periodontics is interested in hearing from individuals who would have periodontal journals to donate or sell to the Academy, for this non-profit project.

Interested periodontists can contact Dr. Albert Frydman, 403-4600 Crowchild Trail N.W., Calgary, Alberta, T3A 2L6, 403-288-3334.

Some Ontario dentists were "good scouts" last summer.

During the sixth annual Canadian Boy Scout Jamboree held in July near Guelph, Ontario, seven dentists from the area volunteered to provide dental services to attendees at the two-week long Jamboree.

The event was attended by approximately 10,000 boys and 3,000 scout leaders and staff, according to an account given to the Journal by Dr. Bruce Jackson. Dr. Jackson, who was asked to organize the dental services for the event, is a Kitchener, Ontario, dentist and past-President of the Ontario Provincial Council of the Scouts.

Both the Ontario Ministry of Health and Ash Temple Ltd., were of great help to the Jamboree, Dr. Jackson told the Journal. The Ministry provided a mobile dental van, while *Ash Temple* provided supplies to treat any type of dental emergency which might have cropped up.

Over the Jamboree's two-week period, seven dentist-volunteers provided service to the scouts. These were: Dr. Ron Anco of Weston, Ontario; Dr. Tom Frater of Orangeville, Ontario; Dr. Randy Whyte, of Arn-



Left to right: Dr. Paul Charette, Dr. Bruce Jackson and Dr. Ron Anco.

prior, Ontario; Drs. Dave and Tom Drake of Stratford, Ontario; Dr. Bob Mowbray of Kitchener, Ontario, and Dr. Paul Charette of Woodstock, Ontario.

Dental emergency treatment provided included everything from replacing broken orthodontic wires, to endodontics. More than 60 emergencies were treated by the dentist-volunteers.

The Department of Health and Welfare recently announced the development and funding of a program to enhance understanding of the treatment of chronic pain.

Aimed at both health care professionals and the public, the information program will be coordinated by the Palliative Care Foundation of Canada in cooperation with the College of Family Physicians of Canada. An amount of \$125,000 will be contributed to the program by Health and Welfare.

The program will include a series of regional pain management seminars for health professionals, as well as the production and distribution of a videotape and other professional educational materials and an information booklet to help patients and their families understand the cause and treatment of pain.

One particular focus of the program will be the severe, chronic pain suffered by cancer patients. Discussions are currently underway to involve the Canadian Cancer Society in the program.

ERRATUM

The editors of JCDA wish to apologize for an error in the photo cutline on Page 664, JCDA, No. 9 (September) 1985. The man in the centre of the lower left photo was identified as "Dr. Jan Murphy" rather than Dr. Jan Brown. The type gremlins apparently confused the name with that of the Coach of the Winnipeg Blue Bombers football team, Cal Murphy.

A Calgary man, Peter Pubben, has devised an ingenious portable dental unit.

His invention, which he calls the Freedom machine, plugs into a 120-volt outlet to operate a high speed drill, a slower drill and a saliva suction pump.

His company, Integra Dental Systems Ltd., took two years, after getting loans, grants and other capital, to produce a prototype — air-cooled, with its own internal water tank, waste storage container, vacuum pump and air compressor.

The first version, after getting approval from the Canadian Standards Association, is now in production. More than 40 have been sold. A new, improved version, delivering quieter and expanded performance, is now ready for the production line.

The machine, weighing 60 kilograms, is being sold to dentists, hospitals and auxiliary care homes. One Saskatchewan dentist, the Journal learned, has a Freedom machine in the back of his van and takes it to schools, hotels, or anywhere his services may be required.

Pubben claims that a patient's room in an institution or any office suite, can be converted into a fully-equipped dental care facility simply by using a Freedom machine and an electrical outlet.

He is now trying to market the device in the United States.

The dental hygiene course at the University of British Columbia will continue there for one more term, but next fall, will be transferred to the Vancouver Community College. The University administration decided earlier this year to discontinue the course, as a cost-cutting measure.

First year dental hygiene students now in the course at UBC will, in the fall of 1986, transfer to the community college to complete their two-year course.

B.C. education ministry officials felt that the University should not discontinue the course immediately because it would take almost a year to set up a curriculum and provide facilities at a community college. The search for the desirable community college was conducted in consultation with the College of Dental Surgeons of British Columbia.

The Vancouver Community College has for some time offered courses for dental assistants, dental technicians and dental mechanics.

An implementation committee has been set up to search for a director for the new course.

The Soviet Union has developed a laser which can relieve toothache and even prevent cavities.

The laser device, developed in Leningrad, is designed to make the laser beam vibrate at a high frequency, making the blood circulate differently in the vessels and improving tissue metabolism. The laser will also, according to a recent press release,

“invigorate the organism's local protection reaction and educate its immunity system.” The beam apparently also helps restore the mucous membrane more quickly.

The laser beam can be used on swollen cheeks, infectious gum inflammation, cold sores, stomatitis and periodontitis.

The laser beam can also be used to introduce tooth decay preventing agents, such as fluoride, calcium and phosphorous-based substances into the tooth. These substances apparently become far more active when the beam is used in the process.

The 57th Street Study Club in New York City is a unique dental organization. All of its 90 members are women dentists under the age of 40.

The Club was founded in 1981 by Dr. Cheryl Ullman, a New York endodontist, as a support group for young women in the dental profession. Many of the members find unique problems for women in the profession, such as balancing the responsibilities of a home life and a career.

In addition to mutual support, the Club also serves as a practice-building function for members. “It can serve as a referral source,” said Dr. Susan L. Stern, a member who practices in Manhattan. “It is also intended to help people when they're looking for positions or opportunities,” she said.

According to ADA statistics, 22 per cent of the current dental school students in the United States are women. While this percentage may lag behind those of other professions (37 per cent of law students and 29 per cent of medical students) it nevertheless indicates a dramatic increase since 1970, when women represented only three per cent of the dental school population.

The British Dental Journal notes that between April 1979 and April of 1984, the maximum charge for routine dental treatment in Britain increased by 190% while the maximum overall charge rose by 267%. During that period, it was reported that the rate of inflation and the cost of the general dental services rose by a bit over 60%. As a result, by 1984, paying patients were contributing about half the cost of their treatment directly. The most recent increase in patients' charges, which have been in effect since April of this year, are designed to generate 25% more revenue from the General Dental Services.

The Journal reports, however, that this is not the end of the story about increases. A more recent Government Paper on the subject of public expenditure indicates more real increases in 1986 and 1987. The writer sees this as a move toward more privatization of dental care for all except children, expectant mothers and those on low incomes.

Chemists at the Research Triangle Institute (RTI), in North Carolina, have developed a non-cariogenic artificial sweetener that seems to have some advantages over aspartame.

The new sweetener — *DL-amino-malonyl D-alanine isopropyl ester*, call RTI-001 for brevity, “is more stable under conditions similar to soft drink use,” than aspartame, explained Herbert Seltzman, PhD, RTI's senior research chemist.

The new compound was developed through a grant from the National Institute for Dental Research, to develop non-cariogenic sweeteners. RTL-001 has an advantage over aspartame in that it has greater stability and would provide a longer shelf life for soft drinks. Also, it does not contain phenylalanine, which possibly has the potential to affect mood and behaviour in some people.

RTI has applied for a patent, but Dr. Seltzman says several years could pass before it reaches the U.S. market. “Optimistically, it could be available in three years, but five would be more realistic.”

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on September 27, 1985.

Common Stock Fund	\$94.69831
Fixed Income Fund	\$47.23854
Money Market Fund	\$32.70478
Balanced Fund	\$18.93923

Total assets (market value) of the plan were \$46,799,972.80 as of September 27, 1985.

The previous month's figures, as of August 30, 1985, stood as follows:

Common Stock Fund	\$99.45969
Fixed Income Fund	\$46.96338
Money Market Fund	\$32.48990
Balanced Fund	\$19.21249

Total assets (market value) of the plan were \$46,425,078 as of August 30, 1985.

Guaranteed Funds Interest Rates as of September 30, 1985:

1 year — 9.10%	4 year — 10.70%
2 year — 9.85%	5 year — 11.05%
3 year — 10.40%	

For further information write to: Canadian Dental Service Plans Inc., Ste. 600, 2 Lansing Square, Willowdale, Ontario M2J 4Z3 or call the central information services of CDSPI at 1-800-268-5418 (toll free number for Western Canada, Atlantic Canada and Ontario for Code 807 only, 1-800-268-3411 (toll free number for Quebec and Ontario except Code 807), and 497-7117 (Metro Toronto area).

A MESSAGE TO CANADA'S DENTISTS

Our professional and private lives demand and merit much of our most precious commodity, time. Such demand allows little time for individuals to monitor changes to federal government policies.

Governments raise revenues in many ways, they

- impose taxes and surtaxes;
- remove long standing tariff exemptions;
- reduce spending, sometimes on national social programs.

Recently the federal government tabled a combination of such actions, some of which have a direct impact on the practice of dentistry and on dental health in Canada.

The Canadian Dental Association has established a professional profile, and as your representative, has presented

the dental viewpoint in its contacts with pertinent federal departments.

The association places a high priority on its government relations work and has established an executive council committee to handle the demands of such liaison activities. A greater portion of our resources are now allocated to this work.

Recent results show that government policy makers will listen to our concerns if they are ably and forcefully presented. For this reason it becomes increasingly vital that you — Canada's dentists — support the Canadian Dental Association and maintain a unified voice to present your concerns to the Government of Canada.

Keep the national dental voice strong — join CDA.

MESSAGE AUX DENTISTES DU CANADA

Nos vies professionnelle et privée exigent et méritent une grande part de cet élément des plus précieux que l'on nomme le temps. Cette exigence ne permet guère aux particuliers de surveiller les modifications que le gouvernement fédéral apporte à ses politiques.

Les gouvernements se procurent des revenus de mille et une façons. Ils

- imposent des taxes et des surtaxes,
- remettent en vigueur des droits de douane depuis longtemps abolis,
- réduisent leurs dépenses en restreignant les programmes sociaux.

Récemment, le gouvernement fédéral a recommandé une combinaison de mesures semblables dont certaines auront des conséquences sur l'exercice de la médecine dentaire et la santé dentaire au Canada.

L'Association dentaire canadienne se dévoue à la cause du

professionnalisme et, en tant que votre organisme représentant, défend le point de vue de la profession dentaire auprès des ministères pertinents du gouvernement fédéral.

L'Association attache une grande importance à ses relations avec le gouvernement. Nous avons même créé un comité exécutif pour s'occuper de ce travail de liaison auquel nous consacrons maintenant une plus grande partie de nos ressources.

À en juger par des résultats récents, les législateurs gouvernementaux sont disposés à nous écouter lorsque nous nous adressons à eux en faisant preuve de compétence et de conviction. Pour cette raison, il est de plus en plus important que vous, les dentistes canadiens, appuyiez l'Association dentaire canadienne et conserviez un porte-parole témoignant de notre union pour défendre nos intérêts auprès du Gouvernement du Canada.

L'union fait la force. Pour vous assurez un porte-parole puissant sur le plan national, joignez-vous à l'ADC.

Resource Centre de documentation

MARKETING YOUR DENTAL PRACTICE

COMMENT VENDRE VOS SERVICES

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One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

NEW LIBRARY ACQUISITIONS

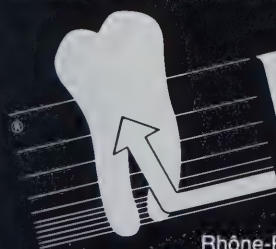
TITRE EN BIBLIOTHÈQUE

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Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

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26%

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(reduction of total pain intensity¹)

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total 4.70

total 3.65

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REFERENCE:

1. The clinical study: In a double blind, single dose study of 122 dental patients suffering postsurgical pain, 975 mg acetaminophen was 26% more effective than 650 mg ASA for Sum of Pain Intensity Difference (SPID) at a confidence level greater than 95%. SPID is a measure of total pain intensity reduction during the four-hour study period.

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Book Reviews

ORAL HISTOLOGY: DEVELOPMENT, STRUCTURE AND FUNCTION

Edited by A.R. Ten Cate

The C.V. Mosby Co., Toronto
Price: Not Available
Pgs: 452

In recent years, traditional methods for teaching histology have yielded to a multidisciplinary structural-functional approach to the subject. This trend often complicates the recommendation of relevant textbooks to students. Dr. Ten Cate's contribution is a textbook of oral histology with structural, functional and developmental perspectives; but it is also much more. Chapters are devoted to 1) a description of the embryological development and post-natal growth of the face and of oral tissues, 2) general topics in histology, such as bone; 3) the histology of plaque, calculus and surface coatings of teeth; and 4) repair and regeneration of dental tissues.

This book is edited by Dr. Ten Cate, who also writes the majority of the chapters. Many of the other contributors are also affiliated with the University of Toronto, making this work a predominately Canadian effort. Even though the book has numerous contributors, it possesses good philosophical and technical continuity and, in fact, reads as though it was written by only one author. The depth of presentation is consistent between chapters, a situation often not encountered in multi-authored textbooks.

This book is in its second edition. Quite often one notices few differences between editions of a textbook. However, in this work, the differences are dramatic. I was disappointed with the first edition of this textbook; in particular, with the photographs. In the second edition, however, the quality of the photographs is excellent. They have good image contrast and are well labeled. The first edition was incomplete in many aspects and required the use of alternate texts to make a complete presentation of the subject. In the second edition, new chapters have been added: on the temporomandibular joint and on the repair and regeneration of dental tissues. Some chapters have been rewritten and their content expanded or reorganized. As in the first edition, diagrams by Dr. Jack Dale are of

exceptional quality and relevance and are well worth the cost of purchasing the book.

The intended audience for this textbook is the first year, undergraduate dental student. The book is specifically organized to meet the needs of this audience. It contains orientation chapters, introducing the student to the various subjects and to the relevant terminology. More detailed chapters follow in the appropriate sequence. This approach produces repetitions, which, in themselves, are often useful teaching tools. Detailed chapters in subjects of general histology and physiology, such as bone histology and the fundamentals of mineralization are also included. These chapters are of sufficient detail to preclude the use of alternate textbooks, which may be of financial benefit to the student. The book presents basic knowledge as well as some complex, relatively new research materials. It also presents some past and present topics of controversy, such as the subject of von Korff fibres and the origin of the collagen of mantle dentine. Bibliographies are included at the conclusion of each chapter and are sufficient to adequately guide the interested student through the relevant literature. Clinical correlative points are relevant and well placed. They are of a very general nature and can be appreciated by the clinically inexperienced reader. Sophisticated anatomical research techniques are presented, but not adequately explained (such as, freeze-fracture, radioautography and histochemistry). Possibly a chapter explaining these techniques would be appropriate as an introductory chapter.

This new textbook presents a significant development in the integration of the disciplines of oral histology, physiology, embryology, and post-natal growth and development for undergraduate dental students. This approach is currently utilized in the curriculum of many universities, but is rarely incorporated into textbook materials. The purpose of this textbook, according to Dr. Ten Cate, is to "introduce dental undergraduates to, and fire their enthusiasm for, a subject that can unite much of the anatomy, biochemistry and physiology presented in the first year dental curriculum." To this purpose he has surely succeeded!

*This book was reviewed by
Dr Roger Johnson,
Faculty of Dentistry,
University of Manitoba*

RADIOLOGIC ANATOMY OF THE JAWS

Harrison M. Berry Jr.

*University of Pennsylvania Press
Philadelphia 1982
\$10.95, 124pp.*

This is an excellent textbook for undergraduate students beginning their lectures in oral radiology. It would also be helpful to anyone who might wish to recall some of the basic radiologic anatomy.

It is a well written, easy to read textbook which deals with normal anatomy and its variations. It is so important to have a thorough knowledge of the normal. The author states in his preface "No matter how perfect the radiograph may be, the art of interpreting the images registered in the emulsion rests primarily upon a thorough understanding of the appearance of normal anatomic landmarks." You can not hope to recognize the abnormal without knowing what the normal looks like.

There are eleven chapters in the book. The first chapter, The Introduction, illustrates in a simple, easy to understand manner how thickness, density and superimposition affect the degree of radiopacity seen in a radiograph.

The second chapter is a short two pages and is just an extension of the introduction.

The third chapter, The Dental Articulation, which the author refers to as the fitting of a tooth in a socket in the bone, deals with the radiographic appearance of the teeth, alveolar process, lamina dura and developmental crypts.

The next four chapters discuss and illustrate the normal radiographic anatomy of the maxilla, maxillary sinus and the nasal fossa.

The eighth chapter deals with the normal radiographic anatomy of the mandible.

The ninth chapter is a very weak chapter, only four pages, on anatomic structures seen in extraoral radiographs.

The tenth chapter, Landmarks in Panoramic Radiographs is an excellent chapter showing the radiographic structures along with the confusing superimpositions and ghost shadows that are seen on these films.

The eleventh chapter contains self study exercises, which I think is a clever and helpful idea. When the author has finished a

section he suggests the reader perform a specific self study exercise. The author will ask the reader to draw a diagram, using different coloured pencils, of certain anatomic landmarks and then give a list of several figures in the text to check the drawing. This chapter also contains a fairly extensive list of references and a suggested reading list.

In all I think it is a very good text for students as it covers in detail normal variants of the maxilla and mandible. The radiographs shown in the text are of excellent quality and the anatomic landmarks depicted are well labelled and very easy to pick out.

*This book was reviewed by
Dr. George C. Sterling,
Toronto, Ont.*

THE CANADIAN LAW OF PATIENT RECORDS

Lorne E. Rozovsky and
Fay A. Rozovsky

Butterworth & Co. (Canada) Ltd., 1984
Toronto, Ontario
\$25.95, 148 pages

Apart, of course, from the fundamental need for all dentists to meet such standards in patient treatment and care as the law clearly requires, there is, within the practice of dentistry, no greater preventative of patient-initiated litigation than the maintenance of complete and accurate records, records made contemporaneously with the events and circumstances to which they apply. The value of 'health records', a term which has largely replaced the hospital based appellation, 'medical records', extends far beyond that of an arrow in the quiver of resources to help prevent malpractice suits. The authors, indeed, advance strong reasons for the identification of fif-

teen purposes and it is not until they reach the final one in the listing that 'legal defence' is identified.

The most important reason for collecting and maintaining most health information is to enable health personnel to treat and care for patients and to make judgments concerning the course of such treatment and care. It enables diagnoses to be made as well as predictions with respect to future problems the patient may encounter. Other purposes include teaching, research, statistical, insurance and funding, taxes and several having a more identifiable institutional applicability.

Lorne and Fay Rozovsky, the authors of *The Canadian Law of Patient Records*, constitute a wife and husband combination which is making a major contribution to Canadian Health Law and who, in particular, are enhancing the programs and offerings of Dalhousie University, Fay Rozovsky as an Assistant Professor of Health Administration and Lorne Rozovsky as Adjunct Associate Professor of Law and Medicine and Lecturer in the Faculty of Dentistry. Together, this talented and knowledgeable legal couple provides comprehensive editorial commentary for the first all Canadian health care law service — *The Canadian Health Facilities Law Guide*.

Patient records are legal documents although there is no definite legal answer as to what constitutes the record. Under evidence legislation throughout Canada and consequent upon a decision of the Supreme Court of Canada, patient records are permitted into evidence as *prima facie* proof of the facts stated in them.¹ Negligence can bear on record keeping, as the common law now makes clear. A British Columbia Supreme Court judge said in a 1981 decision, "the lack of care, the inadequate charting and the unsatisfactory evidence to which I have referred establishes liability for negligence of the defendant hospital."²

Of particular importance are the authors' commentaries on computerization and record linkage and on micro-filming. Concerning the former, it can be concluded that computerized patient record information still has a long way to go in Canada. If there is any doubt as to the legality of computerized records, such information systems should not be used. Although legislation may suggest itself to some, the authors warn that 'the field is still too new to warrant legislation.' Having provincial laws relating to computerized health records runs the risk of nonexperts setting standards that may be inappropriate and difficult to change. In respect of microfilming, all provinces have enacted legislation specifically allowing courts to accept microfilmed records as evidence in lieu of the originals. There is a caveat, however. The microfilming must be a regular practice and there must be a provision for the destruction of the original records.

Appendix B consists of several forms which could readily be adapted to the specific interests and concerns of dental practice and to the requirements posed by provincial legislation or government directives.

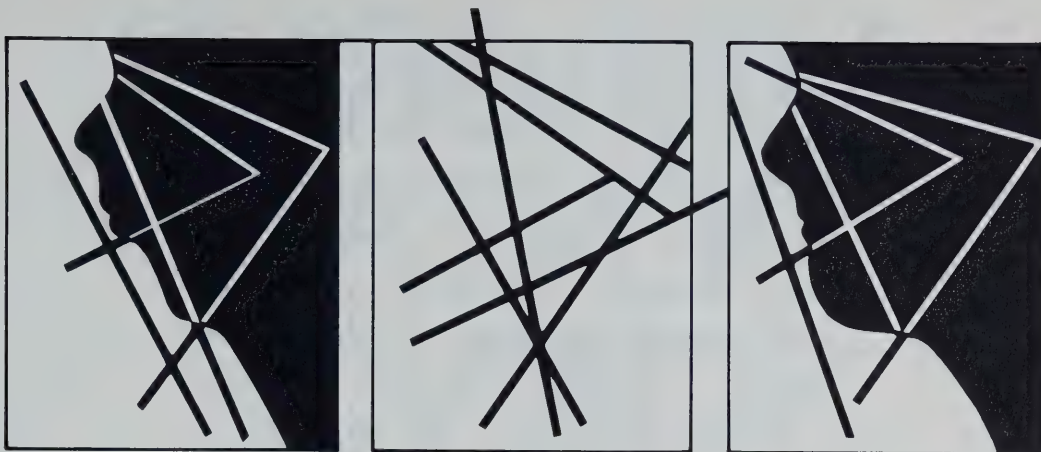
This reviewer agrees with the writer of the Foreword, the President of the International Medical Informatics Association, when he suggests that the "book is . . . essential reading for all Canadian health professionals and others who handle or utilize health records."

*This book was reviewed by
Dr. Wesley J. Dunn, Professor
Division of Community Dentistry
The University of Western Ontario
London, Ontario*

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Orthognathic Challenges: Predictability, Stability and Complications

1986 AAO/AAOMS CLINICAL CONGRESS
January 31 – February 2, 1986
Disneyland Hotel, Anaheim, CA

As the fifth and last contemplated in a series of joint clinical congresses sponsored by the American Association of Orthodontists and the American Association of Oral and Maxillofacial Surgeons, the 1986 congress will focus on state of the art orthognathic surgery. One half day of the congress will be devoted to the insurance and professional liability issues related to orthognathic surgery.

Topics for the two-and-a-half day congress include:

- Growth and Predictability
- Predictability of the Influences of
 - Growth Surgery in the Growing Patient
- Predictability of Treatment on
 - Facial Change
- Specific Orthodontic Considerations to
 - Minimize Postsurgical Relapse
- Surgical Methods to Increase Stability
- Vascular Problems

Problems with Common
 Maxillary/Mandibular Procedures
 Orthodontic Considerations
 Orthodontic Aspects
 Oral Surgical Aspects

A full-day AAOMS Professional Liability Risk Management seminar and the 1986 AAOMS Chiefs' and Faculty Meeting will precede the congress on Thursday, January 30. The Educational Foundation's Chiefs' and Faculty meeting will be an open forum on the proposed four-year requirements for oral and maxillofacial surgery training.

Non-AAO and non-AAOMS members may request registration materials and a copy of the program from:

AAOMS Headquarters
 211 E. Chicago Ave., Suite 930
 Chicago, IL 60611
 312-642-6446



AIRBORNE DENTAL SCIENCE

Jean Cives

This Vignette, by the Journal's erstwhile columnist who writes under the nom de plume of Jean Cives, is the latest in the series. M. Cives, who is suspected to be a well-respected academic and clinician at one of Canada's 10 dental schools, for reasons which become obvious once the article is read, wishes to maintain anonymity.

Cet article est dû à la plume d'une ancienne chroniqueuse du Journal qui a recours au pseudonyme de Jean Cives. Nous soupçonnons fort qu'il s'agit d'une universitaire et d'une clinicienne très vénérable de l'une des dix écoles dentaires du Canada, mais en lisant son article, nous comprenons qu'elle veuille garder l'anonymat.

Returning from a Convention, I was musing on the statement made by a learned professor that unless his particular subject received the attention it was due, then Dentistry would lose the *only* Science it could possibly operate on. I was amazed! Where does he do his job? It had to be in the University Clock Tower — with all the real ding-dongs.

But no, he is a nice, if misguided, chap. How could I dismiss all the science in a variety of clinical subjects so airily, and eerily?

Being a clinician at heart, and having no pretense at being a scientist, I was in a difficult position. To speak out was to be the drunk at a Temperance Meeting. Merely to protest was to admit guilt — the only acceptable response due in church is repentance, not argument.

But actions speak louder than words. The airline that I was on only serves domestic wine. For years now I have told patients facing immediate dentures or several extractions that the only way to feel good after such an event is to sip a nice European wine, preferably a Mosel or Muscadet, just cooled, not frozen. This, I found, after years of scientific experimentation, cuts the gluck in the mouth, and also gives a feeling of well being! Before you write in protest, understand clearly we are writing medical-dental matters here, not inviting the innocent to drink, dance or frighten horses on the streets.

Here I was at 37,000 feet, literally, having these thoughts. How to show him that I am a serious scientific clinician. It struck me! I felt like Isaac Newton on whose head apples fell. The post-extraction wine has been my sole contribution to the relentless march of dental science, but I had no data, no controls, no whatever is the current buzzword in science.

You learn by Scientific Experiment, he told us. Excluded by implication was the time I nearly cut an idiot's tongue in half when I was convinced of the virtues of slice preparations. What about the time I muddled up (never admitted this before — told everyone it was my assistant) the lower casts of two edentulous patients and found the FTF factor at 10 (Failure To Fit Factor, not unknown in denture work).

The dentist who first called my attention to the FTF factor, a famous denture condition, asked me never to reveal his identity — and I will not. He tells of joining a group practice when the imprint of the mortar board was fresh upon his brow, and being asked what he liked doing. He allowed he was interested in Oral Surgery, so his kindly older colleague told him that two citizens were about to become denture wearers and would he go to the hospital on Thursday morning, denude them of teeth and pop in their immediate denture. This he did. However, when fitting the upper dentures, he was most impressed at a) the blood, b) the lack of fit c) the ghastly appearance of both citizens. This made him think first what sort of practice he had joined and second what sort of life had he commenced. Instead of beauties he was producing beasts. First check appointment for both was Friday afternoon. Starting with patient #1, he viewed denture #1, greatly mutilated by his attempts to make it fit. But a sneaky thought

occurred to him. Patient #2 arrived. He ascertained that patient #2 was a bit appalled at his appearance — even his guard dog had fled whimpering when he got home; his wife being of sterner stuff regarded his new denture face as different, and even funny — a sort of masculine idea of a funny thing to amuse wives. The young dentist told #2 he would fix all this for him, took away denture #2, returned to the lab, had a cup of coffee, returned with denture #1 (patient #1 was informed his denture was being "rebased"), fitted denture #1 into patient #2 — total success. Denture #2 into patient #1, another successful insertion using the rapidest rebase system yet developed. Was that a Scientific Experiment from which we learn? Whatever it was, my informant told me that the word spread very rapidly in town that he was the smartest young dentist to hit town for decades — could *he* make those dentures fit! Took him only 10 minutes to fix up the older dentists' terrible dentures. What they learnt at Dental School these days! I digress as usual, but there is an important lesson here — practical experience and science and technology can be different!

What I am building to, astonished readers, is a statement, an expose, as you will, which will rival the insight and achievement of an unknown German dentist. It was one of us who solved the problem of laying a Trans-Atlantic cable. Yes, a German dentist modified a sausage making machine and this put a continuous waterproof covering on the wire used for the first such cable (Editors and other ink-stained wretches who review this during the gestation period — please note I did not make that up, but I cannot remember where I read it).

The Cives Test is now announced. To classify wines, white wines in particular, and in particular for use as in the rinse-and-swallow technique after extractions (see Cives 1984), follow this simple procedure. Decant 2-3 ml of your favourite whites into wineglasses — equal amounts, and one glass (for the sake of domestic recovery) of the locale variety. Drop simultaneously into each glass (as fast as you can) a Rolaid or Tums tablet. Press your \$17.50 digital watch knobs for timer, and watch closely the dissolution of the Test Tablets. The one with the tablet that lasts the longest is the wine best for normals like you and me, the fastest dissolution is just fine for airline passengers.

A final caution or two. Do not believe all you hear at conventions or from experts, and do not drink the above samples except, of course, in airlines, that only serve domestic wine. It will bring you to an altitude of five feet without flaps down!

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Specialty Features

EPILEPSY

AND DENTISTRY

Carolyn Hackland BJ (Hons.)

Currently in Canada there are more than 400,000 people with epilepsy, all of whom should, like all Canadians, have regular dental care.

The dictionary defines epilepsy as "a chronic disorder characterized by paroxysmal attacks of brain dysfunction usually associated with alteration of consciousness. The attacks may remain confined to elementary or complex impairment of behaviour or may progress to a generalized convulsion."

According to the dental practitioners interviewed, dental management of the epileptic whose condition is controlled by medication, does not present a major problem. However, the most popular medication for controlling epileptic seizures can have a major dental side effect.

Gingival hyperplasia, defined as abnormal enlargement or thickening of gingival tissue, is the condition generally thought to be a side effect of the medication most widely used to control epilepsy.

"The only treatment for severe gingival hyperplasia or gingival overgrowth in an epileptic patient would be the excising of gum tissue," said Dr. Robert Turnbull, a periodontist at the Faculty of Dentistry, University of Toronto.

Dr. Arlington Dungy, Chief of Dentistry at the Children's Hospital of Eastern Ontario agreed, saying that when a certain drug is used in treatment and gingival overgrowth occurs, gingival surgery is almost always a necessity.

"In epileptic children, the overgrowth can

start at a very early age and it therefore becomes necessary to begin periodontal surgery very early. From a pedodontic point of view, the overgrowth and the surgery to correct it can interfere with the patient's occlusal development", Dr. Dungy told the Journal.

Although there are some new medications available to treat epilepsy, the most common drug of choice, although successful in controlling epileptic seizures, can cause gingival hyperplasia. As long as the patient is on the drug, hyperplasia can recur.

"This recurrence naturally means more gingival surgery, which is, of course, stressful to the patient," said Dr. Turnbull.

Stress or anxiety about dental treatment, or even the bright lights in a dental office, can precipitate an epileptic seizure.

"If a patient has a spontaneous seizure in the dental operatory the first thing to do is to get the patient into a self-protective environment," said Dr. Dungy. "Place the patient on the floor where a fall cannot cause injury or the patient cannot be injured in any other way."

Another way in which the dental practitioner can help an epileptic patient is to be a caring professional.

"A dentist treating an epileptic must be sensitive to the social stigma associated with the condition," said Dr. Dungy. "Patients who have had a seizure don't remember what occurred or what they did and are very often embarrassed or upset when they recover. A sympathetic attitude can often relieve this type of anxiety."

It was generally agreed among the practitioners interviewed that routine dental treatment of epileptic patients was not a problem.

Dr. John Hardie, Chief of Dentistry at the Ottawa Civic Hospital, told the Journal that even giving an anaesthetic should not pose a problem.

"When giving a local anaesthetic though, it is essential that the local anaesthetic be adequate for the procedure being performed. This will in turn lessen the anxiety in such a patient and thus lessen the possibility of a spontaneous epileptic seizure occurring."

"Generally, though, if the epilepsy is controlled by medication there is no problem administering anaesthesia, doing restorative work or giving any other routine dental care," said Dr. Hardie.

Dr. Dungy agreed, saying "A filling is a filling is a filling and restorative treatment on a patient whose seizures are controlled by medication is no problem."

The only other suggestion that all of those interviewed had for practitioners treating epileptic patients was to ensure that patients followed a meticulous oral hygiene regimen. Not only is good oral hygiene essential for dental health, but, according to Dr. Turnbull, there is some evidence to suggest that meticulous oral hygiene can help in the management of gingival hyperplasia.

For more information about epilepsy contact Epilepsy Canada, P.O. Box 1560 Station C, Montréal, Québec, H2L 4K8, 514-876-7455.

CONCLUSIONS FROM A STUDY ON THE ORAL HEALTH OF QUEBECERS AGED 65 AND OVER

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SUMMARY

A socio-dental survey was conducted among persons aged 65 and over in the Province of Quebec, in order to determine their oral health and prosthetic status as well as the relation between their perceived and diagnosed needs. The data are based on the participation of 1,822 individuals who agreed to answer a questionnaire and undergo a clinical examination. The conclusion of this study's final report includes a summary of the main observations made in the course of the survey as well as suggestions (recommendations) on ways of improving the oral health of the elderly.

SOMMAIRE

Une étude épidémiologique a été effectuée chez les personnes de 65 ans et plus du Québec dans le but de déterminer la condition de la santé bucco-dentaire, l'état prothétique et la relation entre les besoins de traitements ressentis et diagnostiqués. Les résultats découlent de la participation de 1 822 personnes qui ont accepté de répondre à un questionnaire et de passer un examen clinique. La conclusion du rapport final de cette étude comprend un résumé des principales observations faites au cours de l'enquête ainsi que des suggestions sur les moyens à prendre pour améliorer la santé bucco-dentaire des personnes âgées.

Given the quantity and diversity of data collected during this study and subsequent results, some of which were recently published,^{1,2} it seems appropriate to start off by drawing attention to the most important points. The second part of the conclusion looks at a few suggestions and recommendations which the authors have made on the basis of the main findings of the survey.

A brief overview of the characteristics of the population under study will make it easier to understand their behaviour towards dental health. This population is made up of people who have little education and limited incomes; they do not enjoy the benefits of a public dental health program nor do they have dental insurance.

The great majority of Quebecers aged 65 and over (72 per cent) are (fully) edentulous; this is more frequent among women, the less educated and the less affluent in nursing homes and hospitals. The elderly have, on average, 3.5 teeth; dentate individuals have on average 12.4 teeth, of which 2.3 are decayed and 2.4 filled. The proportion of those with decayed teeth is higher in nursing homes and hospitals than in private homes, and lower for women, individuals living in metropolitan areas, the highly educated and the most affluent. A high percentage (64.7 per cent) of the elderly wear full upper and lower dentures. Moreover, these dentures are not new; three-quarters of them, including partials, are five years old and more. The situation is worse in nursing homes and hospitals than elsewhere.

According to the diagnosis reached by surveyors, almost all require treatment. Hence, three-quarters of the dentulous should receive treatment of their teeth and 80 per cent require periodontal treatment. Of those who wear dentures, only one-third of their appliances are considered adequate. On the other hand, as few as 1.6 per cent of the elderly need immediate care; the proportion is higher in nursing homes and hospitals than in private homes.

Generalized oral health problems among the elderly can be attributed, to a large extent, to their limited recourse to treatment, which dates back 13 years on average. This low utilization of services is usually found outside large centres, among the very elderly and also those who are less well educated and less affluent. Further-

more, fewer than 10 per cent of those included in this category kept their last appointment with a dental therapist for an examination, prophylaxis or restoration. This attitude, which shows the limited attention given to oral health, also contributes to its poor state.

Only 42 per cent of elderly Quebecers consider that they need dental care, when in fact 78.3 per cent should be receiving treatment. This weak perception of need is found to a large extent among the very elderly and those who are less well educated, less affluent and living in nursing homes and hospitals.

Finally, it should be noted that a high proportion of elderly Quebecers (80 per cent) have not received dental services during the last five years for the simple reason that they did not consider it necessary. Contrary to popular opinion, economic considerations are of little account as a motive for not seeking help (14 per cent). It is also interesting to note that fewer than 2 per cent of those aged 65 and older refrained from dental treatment in the last five years because of a physical handicap; a similar observation can be made for those with systemic diseases.

The results of this study provide a number of elements which can serve as the basis for reflecting on the oral health situation of the elderly and setting up a plan of action to redress a state of affairs which no responsible society should tolerate without discomfort. The following observations (not recommendations) are meant to be taken as a first step towards some form of collective consciousness.

Bad oral health and general health conditions – quality of life

Total or partial edentulousness – a frequent phenomenon among those aged 65 and older – and the generally poor condition of their dentures can lead to insufficient

mastication of food. This can delay digestion, cause abdominal bloating after meals and food asphyxiation (café coronary).³

An unsightly appearance of natural or artificial teeth often generates behavioural problems, acts as a deterrent to one's social life and, like masticatory difficulties, seriously affects the quality of life.

Dental Health Program(s)

The strong prevalence of oral problems and the limited recourse to therapists both militate in favour of public dental insurance coverage for the elderly. However, before deciding on the necessity of such a drastic measure, it would be appropriate to do an in-depth analysis of the situation.

A program of universal care would not necessarily eliminate all the psychological, social, economic and cultural obstacles which a population can encounter and would not, of itself, improve geographical accessibility to care. People living in remote regions or in nursing homes or hospitals would not be in a better position to take advantage of the program. Also, since for the most part, the better educated and the more affluent already have recourse to dental treatment, there is every reason to believe that free care would not reverse the

situation, as one can see from the Quebec dental services program for children.⁴ The survey further reveals that non-recourse to dental care stems from lack of perception concerning needs rather than from insufficient economic resources. However if the need for treatment were more keenly felt, things would no doubt be different, given that in 1979, some 40 per cent of the elderly living alone and 11 per cent of elderly couples had lower incomes (in Canada) than low income thresholds established by Statistics Canada.⁵

These few considerations, which represent only one facet of the question, are meant to demonstrate the complexity of the problem. Data from this study will allow us to analyze this problem in greater depth.

Dental services in institutions for the elderly

Before implementing a dental health care program to improve the oral health of the elderly — a measure which demands considerable human and monetary resources — several small-scale interventions should be investigated, since these might be able to correct or at least alleviate current deficiencies. In light of the data collected in this study, the main deficiency lies in the organi-

zation of services in nursing homes and hospitals.

On-the-spot access to services is more or less non-existent in these institutions — a situation which hardly facilitates recourse to treatment. Residents of these establishments, already far from aware of the importance of good dental health, are not easily inclined to take steps towards getting services from professionals outside their environment. Therapists connected to these homes and hospitals would familiarize themselves with the specific needs of the residents and would know how to stimulate them so they could take charge of their own dental health.

Community Prevention and Health Education

Despite the availability of services, the fact remains that those aged 65 and over have a limited perception of their needs. This situation is no doubt due to the fact that oral health problems are not always accompanied by pain. It can also be attributed to a lack of knowledge about the rudiments of dental health. The fact that the most recent dental care was, on average, 13 years ago, clearly shows that regular visits to a dentist are not among the habits of the elderly.

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Consequently, without falling into excess and creating needs which cannot be satisfied, it is becoming necessary to provide this segment of the population with detection, prevention and health education services. The purpose of these services is to inform the elderly of the importance of periodic check-ups with dental therapists and of the repercussions of oral conditions on general health.

Raising the awareness of dental therapists about the oral problems of the elderly

According to a survey undertaken by a dentistry student from Laval University during the summer of 1982, dental therapists almost never recommend periodic check-ups or teach basic hygiene in modified form to the elderly.

The same applies to the recall system; its application ceases, as a general rule, for the elderly. This attitude can be largely attributed to the lack of information on geriatrics made available in dental studies programs and also to a certain amount of ignorance on the part of dental therapists concerning their social responsibility towards such a large segment of the population.

These considerations seem to indicate that the solution to the problem of the oral health of the elderly does not necessarily lie in setting up a program of universal care. Before resorting to such an investment of human and physical resources, it would no doubt be advisable to sensitize organizations responsible for community health about the role which is incumbent upon them in geriatric dentistry.

The Department of Social Affairs has to make accessibility to dental care a priority in nursing homes and hospitals. It is up to establishments in the social affairs network, the community health departments and local community service centres to promote health education and prevention among the elderly. As for the professional corporations involved, their duty is to remind their members of their responsibilities towards this important segment of the population. Finally, institutions which are responsible for training dentists must incorporate the teaching of geriatrics into their programs of study without delay.

The joint action of all these organizations is essential, if the oral health of elderly Quebecers is to improve to any tangible degree.

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Reprint requests to Dr. Simard.

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COMPETENCY PROFILES AND THE ACCREDITATION PROCESS

Brian J. Henderson, BA, (Hons.) MEd

Accreditation is "the process by which a private, non-governmental agency or association grants (national) public recognition to an institution, program of study or service which meets certain predetermined standards, as determined through initial and subsequent on-site evaluations."

When an accreditation team examines an educational program preparing dentists, dental auxiliaries or dental specialists, what is being measured or assessed? Fundamentally, it is the ability or potential of the educational program to produce a dentist, a dental specialist or a dental auxiliary. If the educational program has the facilities, policies, qualified personnel, comprehensive curriculum and range of educational experiences necessary for this purpose, the program can be accredited. Accreditation, then, is a process that measures programs rather than individuals.

However, there is clearly a relationship between the accreditation process and individuals. The accreditation process, in effect, provides public assurance that the individual, as a graduate of an accredited

program, has been adequately prepared to be able to carry out at least a specific minimum range of duties. The National Dental Examining Board of Canada, for example, recognizes this by granting national certification, without examination, to current graduates of accredited Canadian educational programs in Dentistry. Recognition of this kind of relationship between the accreditation process and individuals also helps to promote the portability, from one province to another, of graduates of accredited programs.

To be able to measure the ability or potential of an educational program to produce graduates capable of a specific minimum range of duties, the accreditation process must obviously start with a detailed understanding of the program's goals. In other words, the accreditation process must begin with a clear idea of the "product specifications" or what the product is supposed to be.

It is not sufficient to say that the product is "a dentist, or a specialist or a hygienist or an assistant". To produce qualified practitioners and auxiliaries, the program must take as a detailed starting point the specific duties that such practitioners and auxiliaries will be expected to perform. The program's

curriculum and clinical arrangements will reflect this detailed starting point. So will the accreditation standards. Obviously, the provincial dental licensing authorities have to be involved in establishing such a detailed starting point. These authorities specify the provincial scope of practise for dentists and major dental auxiliaries (with some well known exceptions).

This is where "competency profiles" enter the picture. Competency profiles are lists of tasks or duties that a graduate must be able to perform. National competency profiles represent minimum parameters that educational programs must encompass. Programs may vary from province to province in terms of whatever *additional duties* are taught, but the national competency profile represents a basic position which must be included.

At present, the CDA accreditation processes for dentally-related educational programs are not based upon such detailed national positions. There are working assumptions, based upon the general consistency of provincial positions, particularly with respect to the accreditation of educational programs for dentists. Reciprocity with the American Dental Association and its accreditation processes is another factor which has helped to promote con-

sistency in the goals of educational programs and allowed our accreditation processes to succeed without such explicit national positions.

The need for national competency profiles for dental assisting and dental hygiene, however, is much greater. There is considerable variation across Canada in the duties required of dental assistants and dental hygienists. At present, the accreditation process reviews educational programs and those which are accredited are assumed to have received CDA's public recognition for their programs — and the range of duties encompassed in the educational programs (whether this range is at the low or high end of the spectrum of provincial ranges).

There has been no "national competency profile" for a Dental Assistant or a Dental Hygienist, and the CDA Council on Education and Accreditation has directed that these profiles be established. The goal will be, in each case, a *minimum* list of skills that a graduate Dental Assistant or Dental Hygienist should be able to perform. Such a list will not only be helpful to the accreditation process but will be a valuable resource for educational programs. It will provide the basis for the development of a curriculum and also become a check list for evaluation or assessment of a student's ability to perform.

While the idea of behavioural objectives as an educational goal is not new, "competency profiles" or DACUM'S (*Development of A Curriculum*) are a development that originated in Canada's Maritimes. The term and the process have been credited to Robert Adams of Nova Scotia Newstart Corporation. In 1972, he designed a single-sheet skill profile and rating chart designed to answer the question of WHAT a student must be able to do as opposed to HOW he might learn to perform the skill.

The original DACUM process produced the competency profile by putting together a group of 10-12 skilled practitioners for a three-day brainstorming session. A coordinator or resource person would assist the group in identifying general areas of competence. One such general competence or task, for example, might be listed as "MAINTAIN QUALITY CONTROL". This in turn would be broken down into a series of sub-tasks or skills, such as the following:

Sub task: Perform and record regular calibration tests on equipment; Included tasks: Monitor efficiency of sterilization procedure; Test reagents, controls and specimens for acceptability.

Sub task: Store reagents, controls and specimens properly; Included tasks: Set up quality control program; determine allowable limits of error.

Sub task: Run controls and standards with every test performed; Included tasks: Record and evaluate quality control results; carry out corrective measures where necessary.

Through group discussion and brainstorming, the process identifies such general areas of competence (usually eight to twelve major items in any occupation). They are then broken down into the individual sub-skills that are necessary in each area. Initially, there is no great concern about sequence of skills or duplication of items. Later, the entire structure is modified to reflect appropriate groupings and overall sequence and to eliminate duplication. The skill definitions are then numbered and typed in a convenient format.

The Council on Education did not need to undertake such a brainstorming approach to establish competency profiles for dental assisting and dental hygiene. Competency profiles have already been established in most provinces. Accordingly, a sub-committee is reviewing available resource material and with the assistance of a consultant has produced an integration reflecting a national "core" position. This will be reviewed by all groups associated in the accreditation process, including Council itself and the CDA Board of Governors.

If competency profiles for dental assisting and dental hygiene can be approved by all concerned, there will be several benefits. Educational programs will have a national resource. Accreditation requirements can be related to the ability of a program to produce graduates capable of specific performance requirements. A clear concept of a "basic assistant" and "basic hygienist" will emerge and contribute to the portability of these groups. Questions of expanded duties can be discussed with less confusion because of the existence of a base (the competency profile) to which they can be compared. Not least, CDA's Director of Accreditation, when asked by a program director which duties of those the school might teach are included in the accreditation survey, will no longer have to reply, "Whatever your program includes." This is not an acceptable reply, because the school's definition of a hygienist, for example, may reflect a provincial situation, such as Quebec's where the dental profession is no longer directly responsible for the definition of the scope of practice of hygienists.

Competency-based accreditation, then, has a number of advantages beyond its contribution to the national portability of practitioners. The accreditation process has perhaps been slow in moving in this direction. One can point to developments

in the United States which heralded the need for a new emphasis in accreditation on what the Americans called OUTCOMES — what a graduate is expected to be able to do. In 1972, a major study of accreditation was carried out under a United States Commission on Accreditation. While the study supported the value of accreditation as a "quality control mechanism" it stressed that accreditation must operate in a fashion which does not restrict the educational autonomy of the schools. The movement to competency-based accreditation, which measures a program's ability to achieve outcomes (or produce qualified practitioners and auxiliaries who can perform specified duties) — is a response to this type of concern. Schools can use a variety of approaches to prepare practitioners and auxiliaries, but accreditation can still look at the overall program and assess whether there are gaps, anomalies or problems in the program's ability to prepare graduates to perform the duties specified in the accreditation standards.

A second concern reflected in the American study is the need for the accreditation process to be accountable to an appropriate partnership of expertise and to include consideration of the public interest. The partnership approach to accreditation and the vital and direct concern of the NDEB, the ACFD and the Dental licensing authorities in the CDA accreditation process is already established. Public representation has been added to CDA's accreditation structure and it can be demonstrated that CDA's processes include the perspective of the profession, the licensing authorities, the NDEB and the educators and students, (through the ACFD and student representation, respectively). CDA is moving towards the emphasis on outcomes that permits the educational system maximum flexibility in designing curriculum and experiences to produce graduates who can perform required duties safely and competently.

If one compares the achievements of the CDA Council on Education and Accreditation and its planned initiatives with the thrusts of the American study, it appears that the current system is relatively good and is actively and continuously being refined.

An excellent foundation exists, and with the continuing support, interest and involvement of the co-operating bodies, the development of competency profiles for Dental Assistants and Dental Hygienists will further strengthen the CDA accreditation processes for these programs.

Mr. Henderson has been CDA's Director of Accreditation since December 1983.

Clinical Features

THE ROLE OF CLINICAL RESEARCH IN THE FUTURE OF DENTISTRY

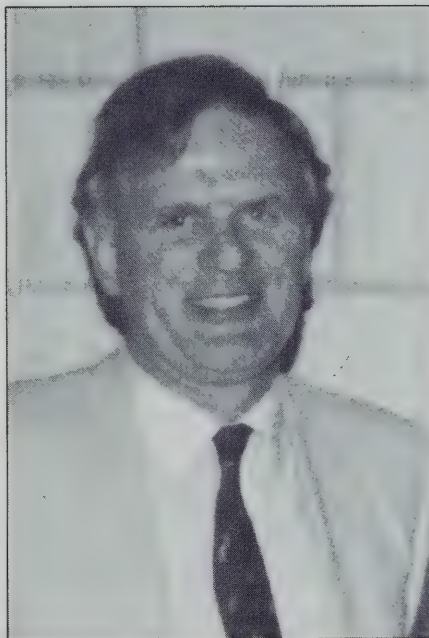
by A.R. Ten Cate, BSc, PhD, BDS

Dr. Richard Ten Cate, Dean of the Faculty of Dentistry, University of Toronto, recently spent some time in South Africa as a guest of the South African Division of Dental Research and addressed their annual meeting. In addition, Dr. Ten Cate, who is the President of the International Association for Dental Research, gave the keynote address to a workshop on Oral Medicine and Periodontology held at the University of Stellenbosch.

His address, which is printed here with permission, concerns the need for increased and improved clinical dental research to meet the changing demands on the practice of dentistry.

Le Dr Richard Ten Cate, doyen de la Faculté de médecine dentaire de l'Université de Toronto, vient de passer quelque temps en Afrique du Sud en tant qu'invité de la Division sud-africaine de la recherche dentaire et a pris la parole lors de l'assemblée annuelle de cet organisme. Président de l'Association internationale de la recherche dentaire, le Dr Ten Cate a en outre été le conférencier principal lors d'un atelier portant sur la médecine buccale et la parodontologie tenue à l'Université de Stellenbosch.

Reproduit avec son aimable autorisation, son exposé souligne le besoin d'augmenter et d'améliorer la recherche dentaire clinique afin de répondre aux besoins changeants dans l'exercice de la médecine dentaire.



It is only 18 months ago that I forecast in my IADR Presidential address that there would be fewer and smaller dental schools worldwide and as a consequence, dental research would suffer because of the traditional link between education and research. At the time I was regarded as somewhat of a Jeremiah and I am not sure whether to be pleased or saddened that a number of my predictions have come to pass. Already two schools have closed in the United States and there will be more to compound the closures and contractions that began in Europe. You may conclude then that I have a good track record in the field of futurology and, on this

occasion, I would like to continue my crystal-ball gazing. Not because I take pleasure in the exercise but rather that it is essential for me to do so as a Dean with responsibility for determining the education of coming generations of dental students.

I am more than ever convinced that a major revolution faces dentistry. Ever since the fifties, when it was first demonstrated that both dental caries and periodontal disease were infective diseases, their incidence has declined and the prospect of their elimination increased. I need not recount the caries reduction in detail for it is familiar to you all, except to point out that it is still declining and has every prospect of continuing to do so in possibly an even more dramatic fashion.

One of my colleagues, Dr. J. Sandham, is about to begin extensive clinical trials involving the use of a varnish which, when applied to teeth, can eliminate streptococcus mutans! He himself has been mutans free for over twelve months. I also see the advent of dentine adhesives which will do much to place restorative dentistry in the hands of lesser trained individuals. Nor will periodontal disease be the saviour of the profession. I say this for a number of reasons.

First periodontal disease, world-wide, only affects a percentage of the population and it is now being appreciated that the severity of the disease in this population is less than was once supposed. More important, because it is an infective lesion, it is capable of cure and indeed there is now preliminary evidence to indicate that the incidence of periodontal disease is beginning to decline in the United States, presumably because of improved oral hygiene. Effective

plaque reducing agents too will shortly be marketed.

In the face of this evidence only the ostrich could claim the preservation of the status quo. What then is the future to be for our profession? It will be different, considerably different.

I think I can forecast the first step in the evolution of our profession with some degree of certainty . . . the second step is more problematical. The first step has already begun with fewer dental schools producing fewer dentists. Eventually they will also produce a somewhat different dental professional and I sense that this change is also beginning, or is about to begin. One need only study the homunculus depicting the sensory input to the cerebral cortex to see the importance of the mouth and its surrounding structures and that their well-being is terribly important to the human psyche. This alone will ensure the need for the "oral" professional in future years and dental education will surely lean towards a greater emphasis on oral medicine with a greater dependence on biology than technology. Concomitant with this there will also be, and this may surprise some, a call for increased clinical research.

Why do I think this? Currently dentistry has the privilege of being a recognized university discipline and the currency that a university uses to measure its activities is not the simple transmission of knowledge, but the right to determine what is taught and this demands that a program be research-based. As dentistry becomes smaller its continued place in the university system will become even more dependent upon its research base. This reality is now beginning to dawn on the profession and to me it is a little sad to see the number of positions suddenly being advertised in the United States for deans of research by schools which previously had few research pretensions. I fear for them it might be too late. A more altruistic colleague of mine denies this argument believing that there has been a long term trend for the profession to develop into a university discipline. Whatever the truth of the matter, the trend is there.

It is also of some interest to cite the experience currently underway in Toronto in our Faculty of Medicine. We have a large medical sciences building, housing the basic science departments and a department for clinical investigation. Clinical instruction is given in a number of large hospitals, affiliated with the University but governed separately, clustered around the Medical school. Currently three of the largest hospitals are building multi-million dollar research institutes to attract top clinicians to their hospitals and to demonstrate that they are

more than just excellent treatment centres. Thus the thrust and need is towards more and improved clinical research and I surmise that this workshop is another recognition of this?

Research in the biological sciences as it relates to the mouth and the surrounding tissues is firmly rooted to the basic disciplines — there are non-dental scientists who are tackling problems in oral biology; there are dental scientists whose findings contribute to the biological sciences in general. There is no boundary between the two estates and much dental research in the biological sciences finds its expression in non-dental Journals. Hard science is a structured experience. Generally I do not believe the same is true for clinical research which presents complex open-ended problems evolving from the care of patients. And it is because of past avoidance in this area that emphasis will be, and should be, placed on it in the future.

So dental schools should start to plan to meet this need. It is a sorry, but true, fact that clinical research generally has been poorly done in the past, and before your hackles rise too far, let me state that there is documented evidence to substantiate this statement for all clinical research, be it medical or dental.

There is evidence that many clinical articles published in the most prestigious of Journals are flawed in their design, in particular the failure to apply randomized controlled clinical trials. I quote the following interesting statistic which shows that about 80 per cent of the uncontrolled trials reported in the literature showed that treatment was effective, whereas only 25 per cent of the randomized controlled trials showed the treatments evaluated to be effective! This evidence was obtained from the study of the medical literature.

A study by my colleague Dr. Lewis shows that the dental literature is equally as flawed. For example, excluding review articles, over half of the clinical manuscript pages involving studies of direct treatment of patients in three national dental journals did not utilize the required comparison groups essential to minimize biased interpretation of findings. The classical example (in medicine) was the halothane controversy where it was passionately felt by anaesthetists that this was the safest anaesthetic available because of absence of liver damage in animals. The views of liver experts who forecast that fatal liver damage might occur were ignored and that their views were correct was not settled until large, randomised trials were undertaken. And in dentistry I cite the use of a variety of materials to place around teeth to improve tooth support without, in my opinion, the

slightest shred of evidence that their insertion is biologically justified or of any benefit to the patient.

Then there is evidence that clinical faculty do not fare as well as their non-clinical colleagues in grant competitions. This leads to accusations that grant committees are biased towards the basic sciences. I happen to be serving on a task force enquiring into dental research and in my own jurisdiction, and I suspect in all others, this simply is not true. The fact is that the quality of applications is poor.

Clinicians claim that the quality and output of research is less than that of their non-clinical colleagues because faculties of dentistry have neglected to provide a favourable environment for clinicians to be involved in research and if given the same commitment as has been directed to oral biology clinical research would have flourished. If I may quote a colleague of mine, Dr. Zarb who has stated "the problem is undoubtedly one of administrative attitudes which have failed to utilize existing qualified clinician investigators effectively within the academic community."

I have a great deal of sympathy for my clinical colleagues who are, these days, under considerable pressure to do research if they are to obtain promotion and tenure, but again the evidence is that a simple change in administrative attitude is not the answer — if administrative attitude was the problem in the first place which I doubt. The problem is much deeper and is reflected by the fact that enough properly qualified clinical investigators do not exist.

I think I have already made the point that clinical research is difficult to do — far more difficult than bench research — yet we expect this research to be done by those trained in a clinical specialty with a patina of a Masters degree overlain to justify an academic base. This level of training, and I use this word purposely, is simply not good enough to prosecute good clinical research.

Dentistry, if it is to flourish as a university based discipline, indeed as a profession, urgently needs to develop a solid clinical research base and the first step must be the provision of a cadre of properly trained individuals. This, I believe, will have to be a crucial role for faculties of dentistry in the immediate future.

I have indicated that the PhD degree, not the Masters, should be the minimum requirement for a clinical researcher. The problem that has to be overcome here is to avoid past experience where clinically trained individuals were asked to undertake the rigours of a PhD training in the basic sciences with the natural consequence that clinical activity was generally forsaken for the basic discipline. I am a good example

of this. May I share with you the Toronto experience? For a decade we have been supported by the Medical Research Council of Canada to provide a program for students to obtain a specialty training and a PhD degree.

The results of this program have been equivocal. All our products who have chosen to stay in academe are in clinical departments, are teaching in a clinical setting but are, for want of a better word, doing basic research applied to their clinical discipline; because that is what they have been trained to do and, I suspect, because in doing basic bench research it is just that much easier to establish a curriculum vitae acceptable to the universities. But at least this is a first step in the direction of more clinical research.

The next step must be to develop a PhD program especially geared to produce a product capable of initiating, conducting and analyzing properly established clinical research. This is not, believe me, an easy task. There is a need to recruit individuals with experience to direct such programs, and I have already made the point that such individuals are in short supply. I believe the provision of appropriate courses in clinical epidemiology to be a simpler problem but another major problem will be to bring about a change in attitude of the universities so that they recognize that clinical research usually demands a lengthy time-span to produce significant information. Time usually in excess of the normal residency for a conventional PhD degree.

There will have to be accommodation by university jurisdictions if the current trend in clinical research, which is the prosecution of applied investigations with the prospect of short-term integration into clinical practice, is to be halted. This is a trend which, I believe, has been instigated in part by the need for PhD candidates to achieve original findings within a short time-frame:

it is also a trend which has led to a poorer quality of clinical research.

I am watching with interest the outcome of a new Masters program at the University of Michigan which is designed to permit health personnel to develop expertise in research design while remaining in their existing employment — in other words no residency is required. This program is in its first year and I must admit to a degree of skepticism as to its success on the basis of the experience with part-time Masters students in Toronto.

The U.K. system, whereby individuals holding junior university appointments are permitted to register for a graduate degree may be a partial solution, given that funding is available for a limited number of positions in financially starved faculties, with strict restrictions on teaching loads and, most importantly, a guaranteed opportunity of a career structure following the training period to permit an opportunity to gain tenure. It is on this point that the universities will have to bend the most — at least in North America.

I have made the point that my remarks apply equally to all branches of the health sciences and that clinical research in general is difficult to do, is more difficult to do well, is unattractive because it is time consuming, and that the universities have generally failed to produce adequate manpower. So why should dentistry be more concerned than the other health science disciplines about an all embracing problem? Dentistry should be more concerned because its way of life is about to change significantly and nothing concentrates the mind more than adversity.

I am confident that we shall respond by changing the undergraduate curriculum to reflect an increased emphasis on the biology of the mouth and clinical epidemiology so as to be better able to deal with malfunction and disease. I sense the coming of an

intern or residency year as in medicine, allowing the university to concentrate on education with clinical and operative skills developed during the residency. I am confident that we shall respond by paying attention to the prosecution of quality clinical research to preserve our status as a university-based discipline. Indeed we are beginning to take action in both these areas and that is why I could be reasonably confident in making my first prognostication and, as I have already intimated, this workshop is as good an indicator as any of the stirrings within the profession in response to coming change which I think we all recognize as inevitable.

For years we have referred to the art and science of dentistry. Dr. Greene, of Chicago has responded to the question "where does the art of dentistry come in?" with the answer "in the cracks between the science." More of these cracks need to be, and will be, sealed in the future.

But the step beyond is far more difficult to forecast. Reality and logic dictate that if we are successful in coping with the immediate future, and I have shared with you how I think we will cope with the immediate future, we are forecasting the demise of the dental profession as a separate entity.

For the truth of the matter is that we will be doing all the right things to ensure that the care of the mouth and associated structures becomes an integral part of health care: an integral part of medicine delivered by doctors of oral medicine. A scenario espoused often in the past, even when I was an undergraduate! A scenario which many think is a correct one but which was regarded as unrealistic while the profession was under no pressure. But the profession is under pressure and this scenario now seems, to me at least, to have a reasonable chance of coming to fruition — whether or not it will be in my professional lifetime is one issue I am not prepared to forecast.

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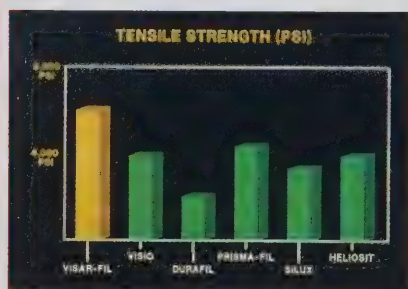


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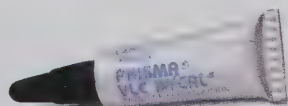
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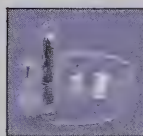
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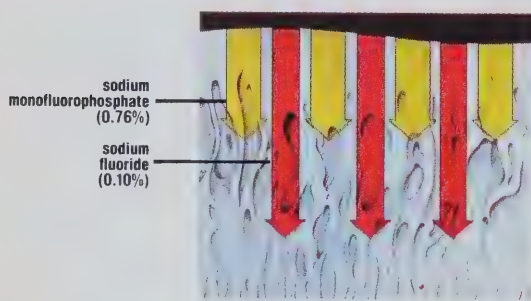
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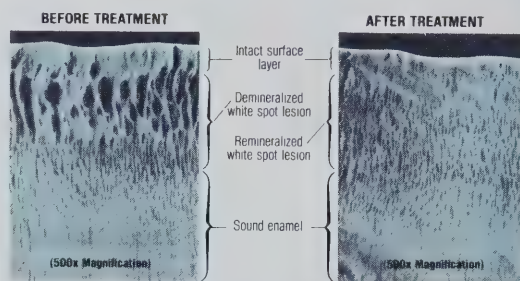
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HYPODONTIA

TWO CASE REPORTS

Peter V. Cooney, BDS, LDM, DDPH
Winnipeg, Manitoba

ABSTRACT

Hypodontia is the failure of development of some teeth. It may present as one manifestation of a syndrome of multiple systems or as an isolated event. Important factors in the dental management of these patients include early recognition of the disorder, a careful examination of the pattern of hypodontia and an accurate diagnosis of the problem, followed by suitable orthodontic and prosthodontic treatment. Two sibling cases of systemically uncomplicated hypodontia are reported.

SOMMAIRE

L'oligodontie se caractérise par l'absence de certaines dents. Elle peut se présenter comme syndrome de plusieurs désordres ou comme manifestation isolée. Dans la gestion des patients affectés d'oligodontie, il est important d'identifier ce désordre le plus tôt possible, d'en examiner attentivement l'évolution et d'en donner un diagnostic précis, puis de procéder à des traitements orthodontiques et prothétiques. Pour illustrer cet article, voici le cas d'un frère et d'une sœur affligés l'un et l'autre d'une oligodontie peu compliquée du point de vue systémique.

Allowing adequate latitude for individual and familial variation, hypodontia is diagnosed by the radiographic absence of teeth when they should normally be present. The most common teeth to be absent are one or more third molars (in up to 25 per cent of the population), mandibular second premolars (1 per cent – 6 per cent), and maxillary lateral incisors (1 per cent – 4 per cent).¹

Excluding third molars, the prevalence of missing permanent teeth is 3.5 per cent to 6.5 per cent. Less than 1 per cent of Caucasians have agenesis of deciduous teeth and when this does occur, it involves the mandibular incisors.

The maxilla is more retrognathic in individuals with hypodontia due to either a shorter or more posteriorly positioned maxilla,² more maxillary teeth are absent in both sexes, sex differences are rare, and mandibular anterior rotation is common.³ Upper and lower incisors are more upright but this does not generally affect lip position or facial aesthetics. In association with missing teeth, patients often exhibit delayed tooth development, asymmetrical development of the paired teeth that are present,⁴ reduced mesio-distal crown diameter and abnormal tooth morphology and position. Apparent hypodontia due to delayed tooth development is also possible.

Hypodontia is genetically determined,⁵⁻⁷ and may present as one manifestation of a syndrome of multiple systems or as an isolated event. It is also related to evolutionary trends of smaller jaw size and less teeth in the dentition of modern man. Agenesis and hypoplasia (pegging) of maxillary lateral incisors are phenomena caused by the same gene.⁸ All combinations of absence and pegging may be seen in a person or in a family with the gene resulting from variability of gene expression. When hypodontia is present in association with cleft palate, an increase in hypodontia is seen. This is now believed to be due to factors similar to those causing the cleft itself. Tooth formation also becomes more retarded with increasing severity of the cleft.^{9,10}

If not treated correctly, hypodontia may result in severe functional disability and cos-

metic problems. Important factors in the dental management of these patients include early diagnosis of the disorder and treatment planning to involve orthodontic and prosthodontic intervention. Behavioural, developmental, technical and financial problems need to be addressed when treating these patients. Primary consideration must be given to the masticatory, aesthetic and phonetic needs of the patient.

CASE REPORTS

Histories

In January 1984, two Caucasian brothers aged 10½ years (C.H.) and 8 years (W.H.), were examined for routine dental treatment. The medical and family histories were not significant. Both patients were free of ectodermal dysplasia, facial clefts and other craniofacial anomalies. There was no history of previous extractions of permanent teeth.

Clinical Examinations

Clinical examinations revealed both patients to have Class I occlusion. Both cases presented in the mixed dentition stage.

C.H. had a 4 mm diastema between teeth #11 and 21, super eruption of 16 and 26, and maxillary and mandibular anterior spacing (Fig. 1). Teeth #13 and 23 were erupting. All deciduous posterior teeth were still present and no permanent lateral incisors or mandibular molars were evident.

W.H. presented with the upper central incisors erupting; 21 was mesio-labially rotated; #12 which was erupting was not pegged but had a hypocalcified incisal surface (Fig. 2). All deciduous posteriors were present except for tooth #74 which had been extracted due to mobility. In the

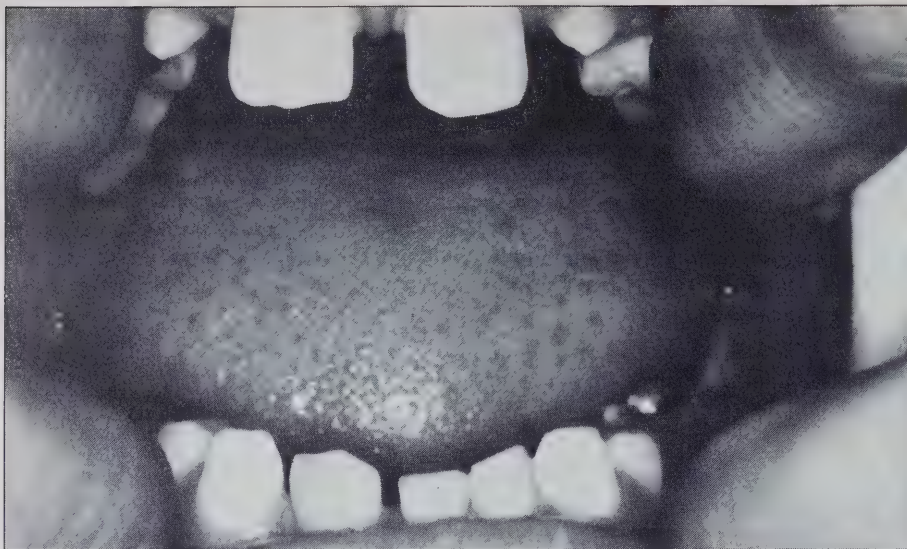


Fig. 1. Clinical appearance of C.H. at 10½ years old.



Fig. 2. Clinical appearance of W.H. at 8 years old.

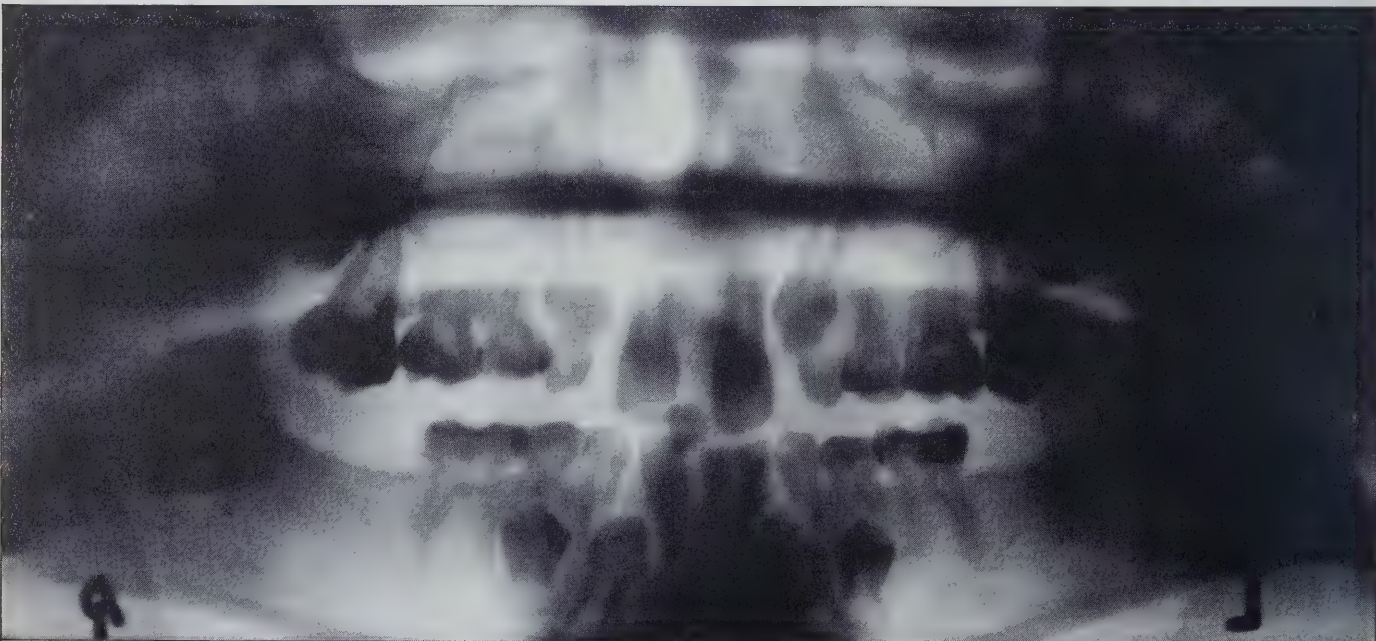


Fig. 3. Panoramic radiograph of W.H. at 7 years old.

18-month period since the panoramic radiograph had been taken, teeth #16, 12, 11, 21, 26, 32, 31 and 41 had erupted. Again, in this case no mandibular molars were evident.

Radiographic Examinations

Panoramic radiographic investigation of C.H. revealed the absence of 18 permanent teeth (Fig. 4):

#18, 15, 14, 12 22, 24, 25, 28
#48, 47, 46, 45, 42 31, 32, 35, 36, 38
Radiographic examination of W.H. showed absence of 15 teeth:

#18, 15, 14 24, 25, 28
#48, 47, 46, 45, 42 35, 36, 37, 38
(Fig. 3).

Treatment

Multi-band orthodontic treatment for patient C.H. will commence after eruption of the remaining permanent teeth, with particular attention to the super-eruption of teeth #16 and 26. Reshaping, spot grinding and fixed prosthodontics will eventually be necessary to render the dentition functionally and aesthetically satisfactory.

Patient W.H. will also require multi-band orthodontic treatment. Immediate treatment will involve construction of a mandibular removable appliance to prevent over-eruption of teeth #16 and 26. The appliance will be reassessed at four monthly intervals to monitor growth and unpredictable eruption patterns.

DISCUSSION

It is vital for the general practitioner to diagnose and plan the treatment of hypodontia cases as early as possible. Often

hypodontia may be the best diagnostic sign of a syndrome as agenesis of teeth is readily observable and is apparent early in life.

Hypodontia of the maxillary incisors, agenesis of, or conical mandibular incisors with occasional agenesis of the premolars is indicative of the pattern of hypodontia seen in Rieger's syndrome. This hypodontia is seen in association with goniodysgenesis (an abnormal development of the interior ocular angle which may lead to blindness). Diagnosis of the hypodontia can lead to correct diagnosis of the syndrome long before the associated glaucoma and its morbid side effects occur.

Other syndromes, such as Brook's syndrome (agenesis of premolars, whitening of hair and increased sweating) and hypohydrotic ectodermal dysplasia (hypotrichosis, hypohidrosis and hypodontia) should also be kept in mind when determining whether hypodontia appears as a single trait, as in these two case reports, or as part of a syndrome.

CONCLUSIONS

A flexible and cautious attitude should be adopted when a diagnosis of hypodontia is made, especially if there are other anomalies present in the dentition. Relevant information must be obtained through questions concerning the patient's medical and family histories. Specific patterns of hypodontia suggest syndromes associated with extra-oral findings, which may help in identifying the aetiology. Other patterns of hypodontia, as in the two case reports presented, may appear as a systemically uncomplicated abnormality, rather than as part of a syndrome.

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Fig. 4. Panoramic radiograph of C.H. at 10½ years old.

CLINICAL DIAGNOSIS AND TREATMENT OF ORAL LICHEN PLANUS

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ABSTRACT

Lichen planus is a mucocutaneous disease, thought to be of immune origin, that commonly exhibits oral involvement. The disease is described, and various treatment methods are discussed. Oral lesions may be nonerosive (keratotic) bullous, or erosive; the erosive lesions are very painful. Both the dermal and oral lesions frequently exhibit striae of Wickham. Although no therapy is universally effective, the use of steroids is currently the most popular treatment. Steroids may be introduced topically, intralesionally, or systemically, depending on the severity of the disease. Because of reported carcinomatous transformation, histologic confirmation of the diagnosis and long-term followup is recommended for patients with intraoral lichen planus.

SOMMAIRE

Le lichen plan est une maladie cutanéomuqueuse que l'on croit être d'origine immune et qui se manifeste fréquemment dans la bouche. Dans cet article, on trouvera une description de cette maladie et des commentaires touchant les divers traitements proposés. Les lésions buccales peuvent être bulleuses (kératosiques) ou érosives, celles-ci étant très douloureuses. Les lésions dermiques et buccales présentent souvent

des stries de Wickman. Bien qu'aucune thérapie ne soit efficace dans tous les cas, les stéroïdes sont actuellement le remède auquel on a recours le plus souvent. Suivant la gravité de la maladie, on les administre directement sur les lésions (application topique), entre les lésions ou en général (application systémique). Parce qu'on a signalé des transformations carcinomateuses, on recommande que les patients atteints du lichen plan dans la bouche aient leur diagnostic confirmé histologiquement et fassent l'objet d'examen suivis pendant une longue période.

Lichen planus is primarily a dermatological disease with frequent oral manifestations. The oral lesions may be present before (preceding the cutaneous lesions by weeks or months), during, or after dermal eruptions, or they may be the sole manifestation of the disease. The exact etiology of the condition is not known, but it is considered to be an autoimmune disorder initiated by a variety of local factors. Trauma, viral and bacterial infection, emotional stress, hypersensitivity reactions, and drug therapy have all been implicated.^{1,2}

DIAGNOSIS

The average age of onset is 50 years; 98 per cent of the cases occur later than

age 30. It is rare to see lichen planus in black or oriental patients.³

The dermal lesions appear on the flexor surfaces of the arms and legs but they may also involve other areas of the skin, including the palms and soles. The lesions are purple, pruritic, polygonal papules, sometimes topped with a whitish lacy scaling called Wickham's striae (**Fig. 1**). Trauma to the lesion such as that caused by scratching will produce a new lesion, which is known as Koebner's phenomenon. There are oral manifestations in about 65 per cent of the patients with dermal lesions.

The oral lesions of lichen planus are most commonly found on the buccal mucosa and tongue, but they may also be seen on the lips, gingiva, floor of the mouth and palate. There are three clinical forms of lichen planus: non-erosive (keratotic), erosive and bullous.

Non-erosive (keratotic) lichen planus displays a myriad of clinical patterns. The classic white lesion may present as thread-like papules arranged in a lacy pattern, and a tiny white papule may be present where the lacelike lesions intersect. This is known as Wickham's striae. Other patterns are seen, such as plaques, streaks, and circular, annular, reticular and flower-petal formations. (**Fig. 2**) The patient may be unaware of the disease as this form is typically asymptomatic.



Fig. 1. Cutaneous lesion of lichen planus.

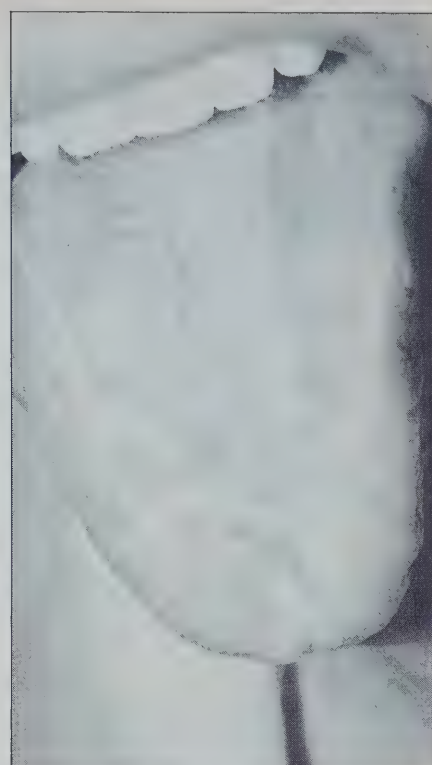


Fig. 2. Nonerosive (keratotic) oral lichen planus.

Erosive lichen planus has been reported to be the most common variety.^{4,5} This may be attributed to the fact that the erosive form is very painful and is most likely to bring the patient in for examination and treatment.² This lesion shows a 2:1 predilection for women and is rarely seen before the age of 40. The lesions may range from a few millimeters to several centimeters and are irregularly shaped (Fig. 3). They appear as atrophic, eroded or ulcerated areas of the oral mucosa. The atrophic lesions are smooth and erythematous with a keratotic border, whereas the eroded/ulcerated lesions have a fibrinous or granular surface that bleeds readily when traumatized.

A recent report has described oral lesions resembling erosive lichen planus that were caused by the use of certain pharmacotherapeutic agents such as non-steroidal anti-inflammatory drugs, thiazide diuretics, chloroquine and gold.⁶ This phenomenon is referred to as a lichenoid drug eruption.

The bullous form of oral lichen planus is characterized by the presence of thick-walled bullae. The lesion is usually found on the buccal mucosa and tongue (Fig. 4). This type of lichen planus may represent a phase between the hypertrophic and the erosive types.^{7,8}

A differential diagnosis for lichen planus should include leukoplakia, candidiasis, pemphigus vulgaris, recurrent aphthae,

benign mucous membrane pemphigoid, lupus erythematosus, II° syphilis and erythema multiforme.

We can readily see from the differential diagnosis that many intraoral white lesions have a similar clinical appearance; therefore, a biopsy should be performed in order to obtain histologic confirmation of clinical suspicions. The histologic appearance of lichen planus is quite distinct, and some feel that it is pathognomonic. Typical findings are hyperparakeratosis and hyperorthokeratosis thickening of the granular cell layer, acanthosis, saw-tooth appearance of the rete pegs, liquefactive degeneration of the basal layer of cells, and an intense bandlike infiltration of lymphocytes (T-cell type) into the sub-epithelial layer of the connective tissue.

TREATMENT

The treatment of oral lichen planus has taken many forms, and none is predictably effective. The most popular current therapy utilizes steroids applied topically,⁹ injected intralesionally,¹⁰ taken systemically,¹¹ or given by a combination of those methods.^{8,12,13}

The topical application of corticosteroids is the most common form of treatment for symptomatic lichen planus.⁹ In instances of minor acute exacerbation, hydrocortisone should be tried first. There are 0.5 per

cent preparations available without prescription.¹⁴ For resistant, more serious forms, a fluoridated steroid may be more effective. In the 0.1 per cent concentration, the fluoridated preparations may be used interchangeably because they are equipotent.^{15,16} A study by Lozada and Silverman¹⁷ reports improvement in signs and symptoms of vesiculoerosive lesions with the use of a 0.05 per cent concentrated fluoridated steroid.¹⁷ The beneficial effect of the topical steroid depends not only on the active compound and its concentration but also on the vehicle. Ointments probably are the most effective vehicle because of the emollient base that forms an occlusive layer over the lesion. Certain investigators recommend incorporating the steroid into an adhesive base¹⁷ or placing an adhesive base over the steroid that has been placed over the lesion.¹⁰ The following drugs seem to be effective in converting the ulcerations of erosive lichen planus to nonulcerative lesions and eliminating the associated discomfort.

Rx

Hydrocortisone ointment, 0.5 per cent

Disp: 5-g tube

Sig: Apply to oral lesions after each meal and at bedtime

Rx

Triamcinolone acetate ointment, 0.1 per cent

Disp: 5-g tube

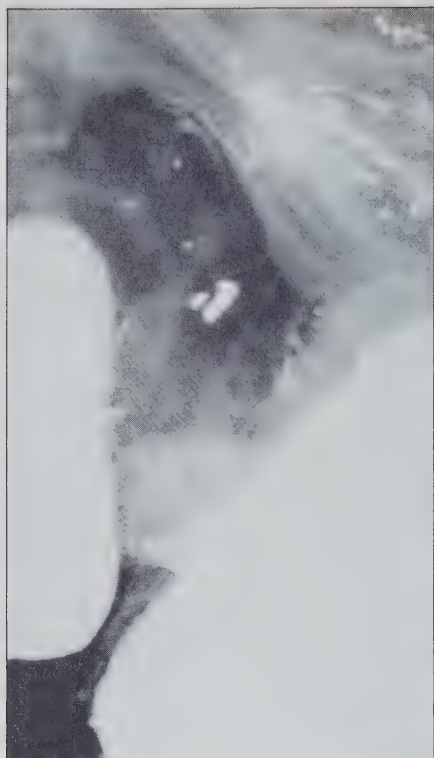


Fig. 3. Erosive oral lichen planus.



Fig. 4. Bullous oral lichen planus.

Sig: Apply to oral lesions after each meal and at bedtime

Rx
Betamethasone valerate ointment,
0.1 per cent
Disp: 5 (15, 45)-g tube
Sig: Apply to oral lesions after each meal and at bedtime

Rx
Fluocinonide gel, 0.05 per cent
Disp: 15-g tube
Sig: Mix equal parts of the steroid with the adhesive base (Orabase) and apply to oral lesions after each meal and at bedtime.

Systemic corticosteroid therapy may be implemented in cases of acute lichen planus with severe pain and puritus. If the oral lesions are diffuse and large, the treatment may require large daily doses of prednisone or dexamethasone.

Rx
Dexamethasone, 0.5 mg/5 ml
Disp: 120- to 247-ml bottle
Sig: Rinse with 1 teaspoonful (5 ml) for 2 minutes four times a day and swallow

Or:
Rx
Prednisone, 10 mg
Disp: Tabs No. 22
Sig: Take four tablets a day (all in the morning or upon awaking) for 4 days; then decrease by one tablet for each of the next 3 days

Or a more aggressive regimen:

Rx
Prednisone, 10 mg
Disp: Tabs No. 63
Sig: For the first week take one tablet four times a day; for the next week take one tablet three times a day; then for the last week, one tablet twice a day.

Intralesion injection of corticosteroids may produce a more rapid and longer lasting response than the topical ointments.^{9,10,18,19} This modality is appropriate for isolated, large, painful lesions. A generalized pattern of lesions is best managed by the systemic regimens. Aqueous solutions of triamcinolone acetonide or methylprednisolone acetate have been injected directly into the connective tissue beneath the clinical lesions, with good results.²⁰ Resolution of the lesion and relief of symptoms were noted in 72 hours.²¹ Complete resolution may take 1-2 weeks, and some patients may remain symptom free.

Triamcinolone acetonide suspension,
10 mg/ml
5-ml multidose vial
Inject 0.5-1.0 ml directly into lesion

Methylprednisolone acetate suspension,
20 mg/ml
5-ml multidose vial
Inject 0.5 ml directly into lesion

Topical anesthetics may be used temporarily to relieve pain associated with the erosive and bullous forms of lichen planus. Certain antihistamines used topically may also provide both pain relief and sedation.^{1,22}

Rx
Lidocaine hydrochloride viscous, 2 per cent
Disp: 100 (450)-ml bottle
Sig: Swish with 1 tablespoonful before each meal

Rx
Diphenhydramine hydrochloride,
12.5 mg/ml
Disp: 4-oz bottle
Sig: Swish with 1 tablespoonful before each meal

The above are the more common approaches to the management of oral lichen planus. For completeness, some other treatment modalities that are less well known will be briefly discussed.

Vitamin A used topically and systemically, has been found beneficial in the treatment of oral lichen planus.^{23,24} It increases the dividing capacity of the cells in the stratum germinativum and simultaneously induces cytolysis in the upper strata.²⁵ Vitamin A also may increase endogenous production of corticosteroids. Both topical and systemic application produce marked improvement of hypertrophic lesions and in some cases reduce the size of erosive

lesions. Once treatment is discontinued, however, recurrence is common, and toxic reactions can be expected with higher daily doses.²⁴⁻²⁶

Vitamin B complex deficiency may be associated with hyperkeratosis of the oral mucosa. Therapeutic replacement may be a useful adjunct in the treatment of hypertrophic lichen planus. Because the various vitamins in the B complex are water soluble, toxic doses are not anticipated.²⁷

Antibiotics. Lichen planus is not directly affected by antibiotic therapy. However, bacterial infection may be an irritating factor, and there is always the possibility of superinfection of eroded areas.

Chloroquine, an antimalarial drug, produces various results in reversing the course of lichen planus.²⁸ It has been found ineffective against the hypertrophic type but has produced good results with erosive and bullous lichen planus.^{9,29} Chloroquine therapy is contraindicated for patients with hematopoietic disorders, anemia, glucose-6-phosphate dehydrogenase deficiency, and eye accommodation disorders.

Other Agents. Arsenic and mercury were parts of the original regimen for treating lichen planus. Both substances are highly toxic, arsenic is a possible carcinogen, and the efficacy of these agents is highly questionable.^{9,20,29} Bismuth and gold have also been used in the past.^{9,28} They are now considered ineffective; in fact, they may produce paradoxical reactions increasing the incidence of lichen planus.

CONCLUSION

Corticosteroids and their synthetic derivatives are the drugs of choice for the symptomatic treatment of oral lichen planus. Topical application or intralesion injections in the oral cavity rarely produce adverse effects.³⁰⁻³⁴ However, significant untoward reactions may be seen with systemic doses. Conditions that may contraindicate corticosteroid therapy include tuberculosis, diabetes mellitus, hypertension, gastrointestinal disease, pregnancy, and the presence of viral, bacterial and fungal infections.

The potential risk of oral malignancy appears to be significantly higher in patients with oral lichen planus than in the general population.⁴ Two authors report malignant transformation in patients with long-standing erosive lichen planus.^{23,25} Therefore, it is imperative that the clinical diagnosis of lichen planus be confirmed histologically, and frequent followup visits should be scheduled. Biopsies at the followup appointments should be performed at the discretion of the clinician, based on the clinical examination.

The opinions or assertions contained in this article are the private ones of the writers and are not to be construed as official or as reflecting the views of the U.S. Department of the Navy.

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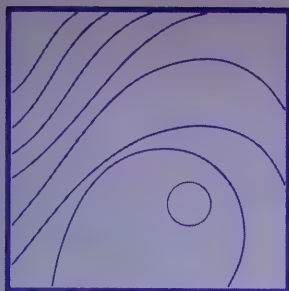
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Bone Grafts: Bone Substitutes in Periodontal Therapy

William Becker/Gerald M. Bowers/John F. Prichard/Raymond A. Yukna

Sunday, May 4

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Sumiya Hobo/Peter Schärer/Herbert T. Shillingburg/Richard J. Simonsen

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Scientific SEALANTS FOR COMMUNITY PROGRAMS*

Michael H. Lewis, DDS, DDPH,
Executive Director
Saskatchewan Dental Plan

BACKGROUND

The Saskatchewan Dental Plan (S.D.P.) is a province-wide children's dental program totally funded by the Saskatchewan Provincial Government. Invitations to enroll children in the Dental Plan are sent to parents with children between the ages of five to sixteen inclusive; approximately 87 per cent of these children enroll. All enrolled children aged five to thirteen receive care in dental clinics which have been established in elementary schools. Currently there are 540 clinics in the schools. The clinics consist of a basic one-chair dental operatory. Children aged 14 to 16 are treated by private dental practitioners with the exception of children living in remote rural areas and children residing in Northern Saskatchewan.

The Dental Plan has been in operation for 10 years. The main provider of dental care is the Saskatchewan Dental Therapist. A Saskatchewan Dental Therapist has completed a two year training program at the Wascana Institute in Regina and is qualified to provide the majority of diagnostic, preventive and restorative dental care required by the children. Each dental therapist works with a certified dental assistant who is trained both in chairside assisting duties and in some intra-oral preventive services. This

two-person team works under the indirect supervision of a dentist and each dentist supervises 10 dental therapist teams. Since 1979 all dental therapists and certified dental assistants have been trained to place fissure sealants.

AVANT-PROPOS

Le Régime d'assurance dentaire de la Saskatchewan est un programme pour tous les enfants de la province entièrement subventionné par le Gouvernement de la Saskatchewan. Les parents ayant des enfants âgés de 5 à 16 ans sont invités à les y inscrire; environ 87% des enfants y sont déjà inscrits. Tous les enfants inscrits âgés de 5 à 13 ans reçoivent des soins dans des cliniques dentaires établis dans des écoles primaires. Actuellement, on compte 540 cliniques de ce genre. Celles-ci sont des cabinets tout simples avec un seul fauteuil. Les enfants de 14 à 16 ans, sauf ceux qui résident à la campagne ou dans le Nord de la province, sont traités par des praticiens privés.

Le Régime d'assurance dentaire est en vigueur depuis dix ans. Le thérapeute dentaire de la Saskatchewan est la principale personne à donner des soins dentaires à l'intérieur de ce programme. Ce thérapeute a suivi un cours de deux ans à l'Institut Wascana de Regina et possède la compétence voulue pour établir le diagnostic et donner des soins de prévention et de restauration qui sont nécessaires, et ce dans la plupart des cas. Chaque thérapeute dentaire travaille avec une assistante autorisée formée pour assis-

ter le dentiste et donner des soins préventifs intra-buccaux. Ensemble, le thérapeute et l'assistante travaillent indirectement sous la surveillance d'un dentiste qui, lui, supervise dix équipes de ce genre. Depuis 1979, tous les thérapeutes et toutes les assistantes dentaires sont formés pour pouvoir obturer des fissures.

Dental Health of Saskatchewan Children

There has been a dramatic improvement in the dental health of children during the 10 years the Dental Plan has been in operation. In the first year of operation each six-year-old child had an average of five decayed teeth. Now, nine years later, each six-year-old child has an average of 1.3 decayed teeth. (Figure 1).

During the 1980/81 school year, 68.5 per cent of all permanent amalgam restorations placed were one surface occlusal amalgams and 31.5 per cent involved proximal surfaces. In reviewing these data with the clinical staff, it was clear that many of the occlusal amalgams were placed as preventive restorations because the teeth had deep fissures rather than dental caries. The supervising dentists reported that because of the past high decay rate the philosophy in planning treatment has been — "if in doubt whether or not a tooth is carious, restore the tooth". Because of the decline in dental decay it was agreed that more conservative treatment planning needed to be initiated in the Saskatchewan Dental Plan.

* Paper presented at the Canadian Dental Association National Conference on Dental Caries Decline: Implications for Private Practice and Public Programs. Montreal, February 1, 1985.

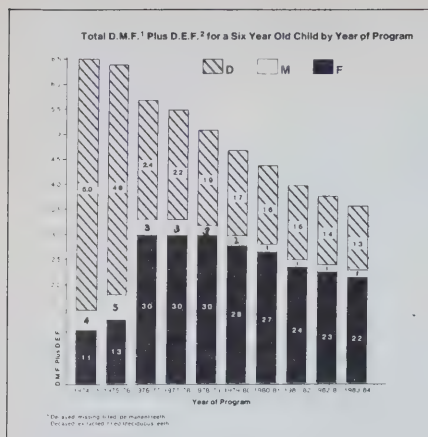


Figure 1

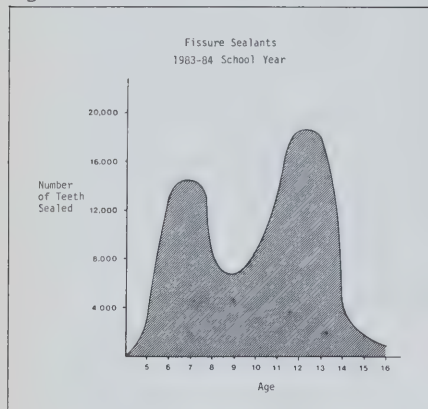


Figure 2

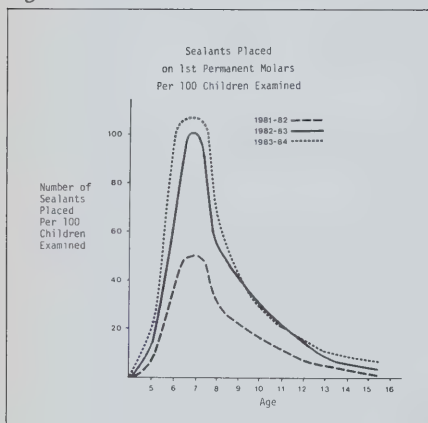


Figure 3

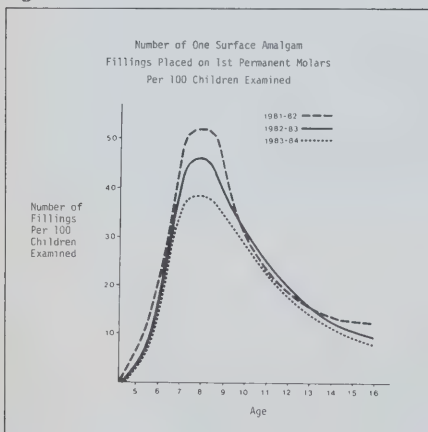


Figure 4

Fissure Sealants in the S.D.P.

GUIDELINES

It was proposed that if fissure sealants were available to dental therapists there would be a significant reduction in the number of one surface restorations placed on permanent molar teeth. Accordingly it was decided to introduce fissure sealants as a new service in the Dental Plan. A review of the handling and placement of chemically polymerized fissure sealants was undertaken. The following guidelines were established for placing sealants, with the objective "to prevent, through the use of sealants, the number of pit and fissure caries in permanent teeth". It was agreed that:

- Sealants were to be placed on:
 - Permanent teeth only;
 - Teeth on "watch" because of potentially carious pits and fissures;
 - Teeth which although not frankly carious, would otherwise have had the pits and/or fissures restored with amalgam.
- Sealants were not to be placed on:
 - Deciduous teeth;
 - Sound teeth that would not need restoration within the next year;
 - Frankly carious teeth having a lesion with a soft floor and/or undermined enameled walls.

Sealants have been in use in the Dental Plan for the past three school years. During the first school year, many dental therapists were apprehensive about placing sealants. In retrospect these therapists agree that they sealed some sound teeth in order to observe the sealant without having to be concerned that caries would develop if the sealant was not retained. An added advantage was the opportunity it provided for them to make their own judgement on the retention and effectiveness of sealants.

RESULTS

During the 1983/84 school year approximately 32,270 children had 110,000 teeth sealed for an average of 3.4 teeth per child. Of the teeth sealed, 49 per cent were first permanent molars, 24 per cent second permanent molars, 13.9 per cent first premolars and 12.8 per cent second premolars. The age distribution of the 32,270 children receiving sealants forms two peaks (Figure 2). There were 36,516 teeth sealed on children 6 to 8 years of age and 50,849 teeth sealed on children 12 to 14 years of age.

The number of fissure sealants placed on individual teeth are shown in the following figures:

Figure 3 shows the number of sealants placed on first permanent molars per 100 children examined. In the 1981/82 school

year, 50 sealants were placed per 100 children examined. This being the first year, the therapists, unfamiliar with the sealants and unsure of what results to expect, were more hesitant than in later years. In the 1982/83 school year, 100 sealants were placed per 100 children examined and in the 1983/84 school year 112 sealants were placed per 100 children examined. Figure 3 also confirms that the majority of sealants were placed at six, seven and eight years of age.

Figure 4 shows the number of one surface amalgam fillings placed on first permanent molars per 100 children examined. During the 1981/82 school year, approximately 53 one surface amalgam restorations were placed per 100 children examined. In the 1982/83 school year, approximately 45 amalgam restorations were placed per 100 children examined and in the 1983/84 school year 37 one surface amalgam restorations were placed per 100 children examined.

Figure 5 shows the number of sealants placed on second permanent molars per 100 children examined. In the 1981/82 school year 22 sealants were placed per 100 children examined. In the 1982/83 school year the number of sealants increased to 53 per 100 children examined and in the 1983/84 school year 70 sealants were placed per 100 children examined.

Figure 6 shows one surface restorations placed on second permanent molars per 100 children examined. In 1981/82 approximately 50 restorations per 100 children examined were placed. In the 1982/83 school year 47 restorations were placed per 100 children examined and in the 1983/84 school year 40 restorations were placed per 100 children examined.

Figure 7 shows the sealants and one surface amalgam restorations placed on first permanent molars for 6-8 year old children.

In the 1981/82 school year 40 amalgam restorations were placed compared with 38.4 sealants for 100 children examined. In the 1982/83 school year there was a small reduction in amalgam restorations, but a greatly increased placement of sealants; 34.9 amalgam restorations were placed, compared with 84.2 sealants for 100 children examined. In the 1983/84 school year 29.8 amalgam restorations were placed compared with 94.9 sealants for 100 children examined. This is a 25.5 per cent reduction in one surface amalgam restorations over the three years.

Figure 8 shows the sealants and one surface amalgam restorations placed on second permanent molars for 12-14 year old children. In the 1981/82 school year 44.7 amalgam restorations were placed compared with 23.2 sealants for 100 children examined. In the 1982/83 school year

41.5 amalgam restorations were placed compared with 52.2 sealants for 100 children examined and in the 1983/84 school year 35.9 amalgam restorations were placed compared with 68.2 sealants for 100 children examined. This is a 19.6 per cent reduction in one surface amalgam restorations over the three years.

Cost of Placing Sealants

The cost of placing sealants in a program such as the Saskatchewan Dental Plan is difficult to assess. Presently the hourly rate for a dental therapist and dental assistant is \$23.36. It is estimated that a sealant can be placed by a therapist and assistant in approximately eight minutes for a labour cost of \$3.33 per tooth. If the material cost for the sealant is 30¢ per tooth, the combined labour and material cost is \$3.63 per tooth. However, this makes no allowance for time reduction when more than one tooth is sealed in a quadrant. It is recognized that this cost does not include a proportion of the overhead costs of equipping and maintaining the school clinics or the administration costs of the Plan.

DISCUSSION

Position of S.D.P.

During the 1984/85 school year these results were communicated to all clinical staff together with an opportunity for open discussion.

At the present time the position of the Dental Plan is:

- 1) There is an obvious amount of oversealing occurring.
- 2) The therapists are encouraged to become more selective in placing the sealants, particularly in not sealing sound teeth.
- 3) There is considerable evidence that early carious occlusal lesions can be sealed in a tooth without the decay progressing. When early carious lesions are sealed, the child will be re-examined every three months.

In two years time, the Dental Plan will have sufficient data to be able to state whether or not in the Saskatchewan Program the carious process is arrested in teeth with early carious occlusal lesions when a fissure sealant is placed.

The clinical staff who have reviewed the data so far believe that the pattern of the past three years has followed a normal learning process and that in future the number of sealants being placed will decline as the therapists become more selective in their use. It now appears that fissure sealants are well accepted both by the clinical staff and by a growing number of parents, and that the placing of sealants will become a procedure permanently offered by the Saskatchewan Dental Plan.

Delivery of Service

It must now be decided if the placing of fissure sealants is to be considered a treatment procedure reserved solely for the private dental practice or if it should become a component of the public dental health education and prevention programs operating in many of the provinces throughout Canada. There is little issue that dental auxiliaries can and do quickly learn the technique for placing fissure sealants and in addition are able to select teeth to receive sealants.

The more contentious issue is whether or not an auxiliary should be directly supervised by a dentist when providing this procedure. In the majority of provinces in Canada, dental auxiliaries working in a public health setting are permitted to provide preventive services under the indirect supervision of the dentist. The Saskatchewan experience supports that indirect supervision by a dentist is perfectly satisfactory for the placement of fissure sealants.

A major concern in providing this procedure in a community or school preventive program is the possibility that some teeth with initial occlusal decay may be sealed. Growing evidence, however, supports the claim that if the sealant is well placed, the decay process is arrested. Furthermore, if the child is under the care of a family dentist, any extension of occlusal decay or proximal lesions will be picked up at the regular examination.

In mounting such a program it is essential that the approval and support of dental practitioners in the area is obtained. Without this support such a program can easily be undermined and parents placed in the position of being unsure if they should accept this service from the community program or have fissure sealants placed by the family dentist.

CONCLUSION

It is proposed that because the occlusal surfaces of children's teeth are the most susceptible to decay and least benefited by fluorides and other preventive measures that the placing of fissure sealants should become a major component of public dental health programs.

The introduction of this program component would be preceded by adequate training of auxiliary personnel plus the development of guidelines for tooth selection for sealants. The addition of this component is particularly appropriate when permanent or portable equipment is already available.

The placing of fissure sealants should be targetted at two major age groups: six, seven and eight and 12, 13 and 14-year-old children.

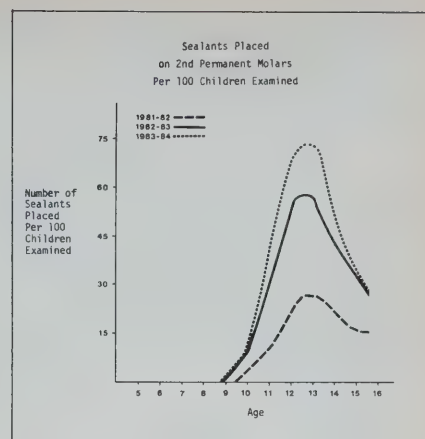


Figure 5

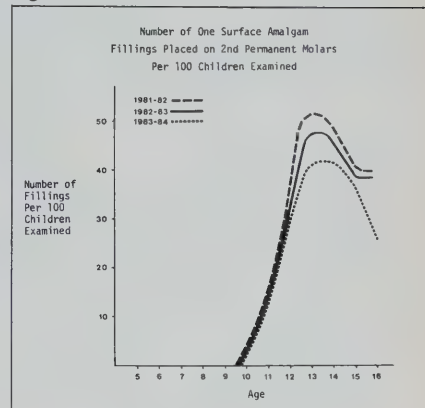


Figure 6

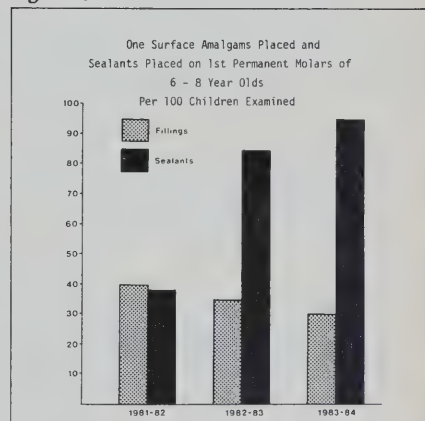


Figure 7

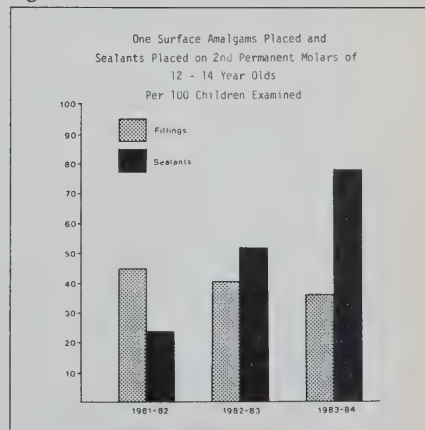


Figure 8

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Major Reports:

are longer contributions dealing with diagnosis and treatment of dental disease, studies in education, clinical and laboratory research and other detailed investigations pertinent to dentistry and related fields.

Clinical Reports:

are brief (up to 1,500 words) reports, case histories and clinical observations. References should be limited and a minimum number of illustrations used.

Opinions:

fully documented (800 words or less), are welcome for publication at the discretion of the editor.

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A covering letter and a summary of the submission must accompany each article. Abstracts will be translated into French. The full mailing address of the corresponding author must accompany each manuscript.

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author will receive a copy of the edited manuscript for checking prior to publication. Galley proofs will be forwarded to authors but changes other than correction of typographical errors will not be accepted. Authors will be given a 24-hour turnaround time. No exceptions will be made. Authors must list professional degrees, academic/hospital affiliations and appointments and are requested to **submit a photograph** of themselves for publication with the article.

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1. Hechter, F.J. Symmetry and dental arch form of orthodontically treated patients. JCDA 44:173-184, 1978.

For books, give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H.C. Work simplification in dentistry, ed. 2. Philadelphia, Saunders, 1964.13

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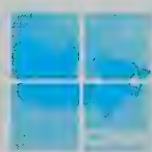
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REACTION AND DISCUSSION OF SEALANTS FOR COMMUNITY PROGRAMS

Judith A. Disney, DMD
University of North Carolina
School of Public Health
Chapel Hill, North Carolina

The Dental Caries Decline
Implications for Private Practice
and Public Programs
February 1-2, 1985
Montreal, Quebec

BACKGROUND

This meeting on the decline in dental caries and the implications for private and public practice was both timely and important. We discussed the secular decline in dental caries, the most effective methods for caries prevention, the least invasive methods for arresting decay, the implications for third party programs, and some topics for future research. These discussions suggest that the everyday activities of dental care providers will change.

All of the papers presented were excellent, but surely one of the most important was "Sealants For Community Programs." Nearly all of the program topics appeared in that paper demonstrating the changing relationships among the host, disease, technology, and provider, as well as the ways we in dentistry respond to new roles dictated by these changes. I would like to comment briefly on three subjects raised by that paper: 1) the interpretation of the decline in decayed teeth over ten years, 2) the guidelines for sealant tooth selection and achievement of the stated purpose for adding sealants to the Plan, and 3) the acceptance of sealants and associated scientific evidence by dentistry.

AVANT-PROPOS

La rencontre portant sur la réduction des caries et sur les conséquences qui en découlent pour les praticiens privés et publics a été très importante et a eu lieu à un moment opportun. On y a parlé de la réduction générale des caries, des moyens les plus efficaces pour les prévenir, des moyens les moins importuns pour les supprimer, des conséquences que tout cela peut avoir pour les régimes d'assurance dentaire défrayés par les tierces parties, ainsi que de divers sujets touchant les recherches à l'avenir. Les débats ont laissé entrevoir que les activités quotidiennes des praticiens dentaires vont changer.

Tous les rapports présentés ont été excellents, mais l'un des plus importants a certes été celui qui avait pour titre: "Sealants for Community Programs" (Obturbateurs pour programmes communautaires). Presque tous les sujets abordés dans la rencontre y sont traités, montrant les relations qui sont en train de changer entre l'hôte, la maladie, la technologie et le praticien, ainsi que les façons dont nous, en médecine dentaire, nous répondons aux nouveaux rôles imposés par ces changements. J'aimerais faire brièvement des commentaires sur trois sujets soulevés dans ce rapport: 1) l'interprétation de la réduction des caries en dix ans, 2) les directives touchant le choix des obturbateurs dentaires et la réalisation des objectifs déclarés en ajoutant des obturbateurs au régime d'assurance dentaire, et 3) l'acceptation des obturbateurs et de preuves scientifiques connexes par la médecine dentaire.

DECLINE

The decayed, missing or filled primary (def) and permanent (DMF) indices are used for descriptive, planning, and evaluation purposes. The components of the DMF index are useful for estimating the proportion of met treatment needs by computing and comparing decayed, filled, and missing ratio scores. Ideally, the filled ratio (D/DMF) among children with decay experience should be close to one. Low filled to decayed ratios (less than .5) suggest lack of dental restorative treatment and high missing ratios suggest virulent caries in addition to lack of dental services.

The decline in the number of decayed primary plus permanent teeth from 5 to 1.3 teeth over ten years reported by Dr. Lewis is dramatic but incomplete, because only part of the index for cumulative disease experience is reported.¹ Does the decline in decayed teeth reflect a decline in the prevalence of disease experience or only in the proportion of unfilled decayed teeth? It reflects both, since disease prevalence declined 45 per cent from 6.55 to 3.63 (def+DMFT) and the proportion of decayed teeth in the index declined from 0.76 to 0.37 (Table 1).^{2,3}

The Saskatchewan Dental Plan (SDP) has been quite successful in providing restorative care to meet treatment needs. The filled ratio scores are compared for children in the Plan with those of two U.S. surveys in Table 2. At all ages, children in the Plan had higher filled ratios in 1977/78 than children in the National Preventive Dentistry

Demonstration Program (NPDDP).⁴ Ratios in the National Caries Prevalence Survey (NCP) conducted during 1979/80 are higher compared to those of the NPDDP and fairly similar to those in the Plan for 1983/84.⁵ Thus, children in the Plan tended to have more of their treatment needs met than children in the two U.S. studies cited.

Sealants

Sealants were added to the Plan in the fall of 1981 to control questionable lesions in pits and fissures more appropriately and to reduce the number of class I amalgam restorations. The philosophy of diagnosis for fillings changed quite importantly. "When in doubt, fill" became "when in doubt, seal." Teeth to be sealed are permanent, "on watch" and not frankly carious, "but would need pit and fissure amalgam restorations."¹

I hope these guidelines are interpreted liberally so that incipient lesions are sealed rather than restored with amalgam. There is adequate evidence demonstrating that after sealing, decay does not spread and the associated organisms die.^{6,7} Amalgam preparations to restore incipient, and some frank lesions, require the removal of sound tooth structure, permanently weakening the remaining tooth.⁸ In addition, sealing incipient lesions was found to be more cost efficient than restoring them with amalgam in an ongoing public program.⁹

The guidelines contain three conditions in which sealants are not provided: 1) permanent teeth that are unlikely to need treatment within a year, 2) frankly carious teeth, and 3) deciduous teeth. Not sealing teeth that are unlikely to need treatment seems reasonable and reduces overtreatment. It would be interesting if the Plan documented their success rate in predicting teeth likely to remain sound. The technology for

managing frankly carious teeth is changing and this guideline should change too. The preventive resin restoration may be adopted directly or the definition of incipient lesions might be extended to include borderline frank lesions, resulting in fewer amalgams.

The third guideline, precluding sealant use on primary teeth, seems curious because among four and five year olds the disease levels are still moderately high, 2.4 to 2.8 deft respectively.³ The primary molars would appear to be likely candidates for sealants rather than for amalgam fillings. In the past, there were questions about the application and retention of sealants on primary teeth. Ripa recently reviewed the literature and concluded that primary molars do not need more than the recommended 60 seconds etching time and that primary molars should be sealed using criteria similar to those for permanent tooth selection.¹⁰ Therefore, I hope this guideline will be changed soon, resulting in improved dental health for young children.

In 1981-82, sealants were added to the services provided by the Plan "to reduce the number of occlusal amalgam restorations in permanent teeth."¹¹ Since that time the number of amalgams has decreased as sealant use increased. In fact, the figures reported by Dr. Lewis may underestimate the actual reduction experienced since he used 1981/82, the year sealants were introduced, as the baseline year instead of 1980/81.¹¹ If 1980/81, the most recent year when sealants were not applied, is used as the baseline year, the average number of one surface amalgams per 100 children declined in 6-8 and 12-14 years olds by 33 per cent and 23 per cent respectively between 1980/81 and 1983/84 (Table 3). These changes indicate that it is possible that the number of one surface amalgams

will decline further over the next three years, possibly as much as 80 per cent in 6-8 year olds.

Costs

Costs are an important issue for all health programs. Unfortunately, there is a shortage of published reports for public dental programs based on standard accounting methods. An estimate of some direct costs for sealant application in the Plan are provided. The lower cost estimate of sealant compared to amalgam is similar to that of other reports.^{9,12} A fuller report of the direct costs from the Plan would be an important contribution to the literature.

In the NPDDP, sealants usually were applied by dental hygienist and assistant teams under general supervision of a dentist. The project coordinator and clerk also helped administer the clinic. Thus the direct personnel costs for sealants included all five categories of personnel. The actual average direct costs per child for sealants are displayed in Table 4, including estimates for total supplies and capital equipment.¹³ The costs were gathered from data based on two clinical visits each school year and the total of \$25.98 is reported, in 1981 U.S. dollars. Adjusted to 1984 dollars those costs become \$30.43. The adjustment factor is a ratio of the implicit GNP deflator for 1984 divided by 1981 ($220.52/188.25 = 1.17$).^{14,15}

A rough comparison between the Plan and the NPDDP single visit cost may be made by estimating only dental hygienist and assistant costs, and adjusting the personnel and supply costs to 1984 Canadian dollars. An estimate of 24 minutes treatment time per child represents a period equal to sealing two quadrants, a reasonable amount of services. The December 1984 U.S./Canadian exchange rate of 1.295 was used to

TABLE 1

Mean deft and DMFT for Six Year Olds, Enrolled in the Saskatchewan Dental Plan, 1973/74 and 1983/84

INDEX	1973/ 1983/		DIFF	%DIFF
	74	84		
d	4.11	1.12	2.99	-73
e	0.44	0.10	0.34	-77
f	1.06	2.14	1.08	+102
deft	5.61	3.37	2.24	-40
D	0.90	0.21	0.69	-77
M	0.00	0.00	0.00	0
F	0.04	0.04	0.00	0
DMFT	0.94	0.26	0.68	-72
deft+DMFT	6.55	3.63	2.92	-45

TABLE 2

Mean Filled/DMFT Ratios for Children Ages 6 to 10 Years

AGE	SDP 1977/ 78	NPDDP 1977/ 78	NCP 1979/ 80	SDP 1983/ 84
6	.24	.21	.42	.20
7	.43	.34	.58	.41
8	.64	.42	.68	.63
9	.74	.52	.74	.83
10	.69	.57	.74	.77

TABLE 3

One Surface Amalgams per 100 Children, Ages 6-8 1st Molar, Ages 12-14 2nd Molar, 1980/81 and 1983/84

AGES	1980/ 81*	1983/ 84	Differ- ence	%Less
6-8	45	30	15	33
12-14	47	36	11	23

* estimated baseline

convert the NPDDP 1984 costs to Canadian dollars. The figures are displayed in **Table 5** and suggest that the Plan provided sealants for slightly less cost than did the NPDDP. However, these figures underestimate the total direct costs because they do not include capital and dentist supervision costs. In the NPDDP these factors amounted to about 20 per cent of the sealant's total direct costs.

Professional Activities

The Lewis paper reflects some reluctance on the part of therapists to adopt sealants without further personal experimentation. There are certain key tasks that reinforce the identity of dentists, therapists, or assistants. The cutting of hard and soft tissue has been central to the identity of dentists and, to a degree, to that of therapists. If the stated program goal is to reduce the number of amalgam restorations, it interferes with part of a therapist's identity as a provider of restorations to children. There might also be concern that others would no longer perceive the therapist as a therapist, perhaps leading to replacement by another auxiliary category. I would suggest that therapist apprehension was related more to role identity than questions about sealant retention and efficacy.

Similarly, dentists have voiced concern about sealants when the underlying apprehension seemed to be role identity.¹⁶ Dentists seem to be convinced that they are providing valuable services only if they are cutting teeth. If we are to implement new technologies successfully we must also promote new behaviors by describing new role models. Good dentists and therapists use sealants selectively on teeth with sticky pits and fissures or on teeth with incipient lesions.

Another issue is how we value opinion

and scientific evidence in dentistry. Opinion and experiment are well described by A.L. Cochrane writing on the Evaluation of Evidence.¹⁷ He states, "Two of the most striking changes in word usage in the last twenty years are the upgrading of 'opinion' in comparisons with other types of evidence, and the downgrading of the word 'experiment.' Its (experiment) current meaning, according to . . . normal scientific use, is 'to test a hypothesis.' It has been taken over by journalists and debased from its usual meaning and is now being used in its archaic sense of 'action of trying anything', hence the endless references to 'experimental' theatres, art, architecture, and schools. . . . This misuse of 'experiment' has, I think, altered people's attitudes to . . . experimental evidence."

The Lewis paper contains statements that are somewhat confusing. "An added advantage was the opportunity it provided for them to make their own judgement on the retention and efficacy of sealants. In two years time the Dental Plan hopes to be able to state whether or not the carious process is arrested in teeth with early carious occlusal lesions when a fissure sealant is placed."¹ Does Dr. Lewis mean to test a hypothesis or to try something new? If the sealants are not retained will the operators' technique be reviewed or will sealants be dropped? How does the Plan intend to evaluate whether or not the carious process was arrested?

The answers to these questions are already available, based on sound experiments conducted within recognized scientific standards. Reports on arrestment of the carious process and sealant efficacy began appearing in the literature about eight to ten years ago.^{6,18,19} Thus, my frustration as a researcher, and concern as a taxpayer, is whether preventive dental public policy is

being directed by personal opinion or by scientific evidence. The public's health needs are met by researchers, public health and private practitioners, each having unique skills to contribute. Major changes are occurring in dental disease, technology, and practice against a background of social change. It is important for all of us to work together, and to recognize and draw on each other's skills as we proceed into the future.

SUMMARY

There has been a major improvement in dental health among school age children enrolled in the Saskatchewan Dental Plan. Over a ten year period the proportion of met treatment needs has doubled and the cumulative disease experience has declined by half in six year olds. Further, sealants have been added successfully to the SDP services. After three years the number of one surface amalgam fillings has been reduced 23-33 per cent. The number of amalgams could be reduced further if sealants were applied to primary molars and to teeth with incipient lesions, and preventive resin restorations used for frankly carious pits and fissures.

The SDP records are a valuable data set that should be explored very carefully. The Plan has operated long enough so that costs and the factors that influence them can be assessed. If the data exist so that longitudinal information can be evaluated, the results would be invaluable to dental epidemiology and to public policy decision making.

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TABLE 4

Actual Average Direct Costs per Child for Sealants* (1981 Dollars) NPDDP

	2 VISITS PER YEAR	1 VISIT PER YEAR
PERSONNEL	21.33	10.67
SUPPLIES	2.19	1.10
CAPITAL	2.46	1.23
TOTAL	25.98	13.00

TABLE 5

Adjusted Average Costs for Personnel and Supplies in the Saskatchewan Dental Plan (SDP) and the NPDDP

	1981 DOLLARS	NPDDP 1984 DOLLARS	1984C. DOLLARS	SDP 1984C. DOLLARS
PERSONNEL (HYG. & ASSIST.)	7.92*	9.27	11.12	9.34
SUPPLIES	2.19	2.56	3.07	3.07
TOTAL	10.11	11.83	14.19	12.41
* MEDIUM WAGE RANGE				

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PARTICIPACTION

Announcements

NOVEMBER/NOVEMBRE

November 1-5: 42nd Annual meeting of the American Institute of Oral Biology, Spa Hotel, Palm Springs, California. Contact: Executive Secretary, P.O. Box 481, South Laguna, California, 92677.

November 2-5: 126th Annual Session of the American Dental Association, San Francisco California. Contact: The American Dental Association, 211 East Chicago Ave., Chicago Ill., 60611 U.S.A.

November 7-9: First International Beijing (Peking) Symposium in Dentistry and First International Dental Trade Show. Inaugural theme will be dental materials and their clinical use. Contact: Quintessence Publishing Co. Inc., 8 S. Michigan Ave., Suite 2301, Chicago ILL. 60603, U.S.A. Telephone (800) 621-0387.

November 18-21: American Dental Association, Foods Nutrition and Dental Health Program in co-operation with the University of Texas, Health Science Centre at San Antonio, Dental School, announces a scientific **Consensus Conference on Methods for Assessment of the Cariogenic Potential of Foods**, University of Texas Health Sciences Centre, San Antonio, Texas. Contact: Dr. Dominick DePaola, Chairman, 7703 Floyd Curl Drive, San Antonio, Texas, 78284, 512-691-6601.

November 22-23: The Ontario Dental Association and the Ontario Academy of General Dentistry will present the Perio Symposium of the Decade. Speakers include Drs. Ron Nevins, Roger Wise, Norton Taichman, Steven Offenbacher, William Becker and Max Listgarten. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ontario, M5R 2P1, 416-922-3900.

November 26-30: Congrès International de l'Association dentaire française. Paris, France, Palais des Congrès. Contact: Secrétariat Général, 92 Ave. de Wagram, 75017, Paris, France.

November 28: 1985 Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre. Contact:

Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 30: American Academy of Dental Electrosurgery annual meeting. New York Hilton Hotel. Contact: American Academy of Dental Electrosurgery, 57 West 57th St., Suite 1001, New York, New York, 10019, 212-755-6630.

November 30: The Faculty of Dentistry, University of Toronto General Open House. 124 Edward St., Toronto, Ontario, 1:00 to 4:30 p.m. Admission is free and tours will include demonstrations, displays, teaching methods and research activities. For more information, contact the Office of the Dean, Agnes J. Pereira, Administrative Assistant, 416-979-4385.

DECEMBER/DÉCEMBRE

December 5-10: Asian Pacific Dental Congress, Bangkok, Thailand. Contact: Conference Travel of Canada, 102 Bloor St. West, Suite 620, Toronto, Ontario, M5S 1M8. Toll Free: 1-800-387-1488.

JANUARY/JANVIER 1986

January 13-15, 1986: The National Institutes of Health in cooperation with the National Cancer Institute and the National Institute of Dental Research are planning a Consensus Development Conference on the Health Implications of Smokeless Tobacco Use. To be held at National Institute of Health headquarters, Bethesda, Maryland. Contact: Barbara McChesney, Prospect Associates, Suite 401, 2115 East Jefferson Street, Rockville, Maryland, 20852, 301-468-6555.

January 16-19, 1986 – Yankee Dental Congress 11th Annual Meeting, Boston, Mass. "Prescription for Excellence." For information: Massachusetts Dental Society, 36 Washington Street, Wellesley Hills, MA 02181. Telephone: (617) 237-6511.

January 18-25, 1986: Hawaii Dental Congress, Honolulu, Hawaii. Contact: Conference Travel of Canada, Inc., 102 Bloor

St. W., Suite 620, Toronto, Ont. M5S 1M8. Toll Free 1-800-387-1488.

January 30–February 2, 1986: Health-Com '86, Las Vegas, Nevada, Las Vegas Convention Centre. Highlights computer, telecommunications and information systems specifically for the healthcare industry. Contact: Lin Fish/Pete Soraparu, Fleishman Communications Inc. 312-397-7744.

FEBRUARY/FÉVRIER 1986

February 14, 1986: Academy of Dental Materials – Continuing education course on "Titanium", the new alloying element in dentistry. Northwestern University Dental School, 311 East Chicago Avenue, Chicago ILL 60611. Contact: Sybil Greener. Telephone (312) 943-8410. Immediately precedes Chicago Midwinter Meeting.

February 16-19, 1986: 121st Chicago Midwinter Meeting, Chicago Hilton and Towers, Chicago Illinois. Theme is "New Horizons." Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Illinois, 60602, 312-726-4076.

MARCH/MARS 1986

March 16-20 1986: The International Orthodontic Conference, Sheraton Rotorua Hotel, Rotorua, New Zealand. Contact: Ron Roberts, Air New Zealand, 151 Bloor St. West, Suite 340, Toronto, Ont. M5S 1S4.

March 2-5, 1986, College of Dental Surgeons of British Columbia, Convention – "Dentistry in Motion" – at Hotel Vancouver. For Information, write to: Dr. Ken Neuman, College of Dental Surgeons of B.C. 1125 West Eighth Avenue, Vancouver, B.C. V6H 3N4.

APRIL/AVRIL 1986

April 3-6, 1986: World Congress VIII for Oral Implantology, Macutosherton Hotel, Caracas, Venezuela, South America. Contact: Margaret Jackson, Executive Director ICOI, P.O. Box 2277, Grand Central Station, New York, New York, 10163, 201-783-6300.

April 6-9, 1986: International Rehabilitation Week, includes a conference and exhibition at the New York Convention Centre, New York City. Contact: EJJ Management Inc., 225 West 34th St. Suite 905, New York, NY. 10122, 212-563-5461.

April 7-12 1986: 23rd International Dental Show and German Dentists' conference in Cologne, Germany. Contact: Messe-und Ausstellungs-Ges. m.b.h. Koln, Messeplatz, Postfach 210760, D-5000 Koln 21 (Deutz) West Germany.

MAY/MAI 1986

May 2-4, 1986: The 2nd International Symposium on Periodontics and Restorative Dentistry. Westin Hotel, Boston Mass. Sponsored by Quintessence Publishing Co. Inc. Contact: Quintessence Publishing Co. Inc. 8 South Michigan Ave. Chicago Ill. 60603 312-782-3221.

May 11-14, 1986: Ontario Dental Association 119th Annual Spring Session. The Sheraton Centre Hotel, Toronto. Contact: Diana Thorncroft, 234 St. George St., Toronto, Ontario, M5R 2P1.

May 21-23, 1986: International Life Sciences Institute, Symposium on Sweetness. International Conference Centre of Geneva, Switzerland. Contact: Symposium Secretariat, Conference Associates ILSI,

27A Medway Street, Westminster, London SW1P 2BD, England.

May 21-23, 1986: Expodent 1986 Trade Fair and Congress for Present Day Dentistry and Dental Technology. Utrecht, Holland. Contact: Royal Netherlands Industries Fair, Postbus 8500, 3503 RM, Utrecht Holland.

JUNE/JUIN 1986

June 26-29, 1986: 10th International Symposium on Dental Hygiene. Oslo, Norway. Scandinavia Hotel. Abstracts must be submitted by **November 1, 1985**, to: The Scientific Committee, 10th International Symposium on Dental Hygiene, P.O. Box 438, 1301 Sandvika, Norway. For more information contact either Inger-Lise Bryhni or Elisabeth Olsen Kolbjornsen at the above address.

June 30-July 4: The 8th Congress of the International Association of Dentistry for the Handicapped, Bergen Norway. Contact: Dr. Marit Moland, Helsm Vei 19, 5032 Minde Norway.

JULY/JUILLET 1986

July 1, 1986: Applications are being accepted for the **Postdoctoral program**,

Dental Diagnostic Science at the University of Texas, Health Science Center at San Antonio for the class beginning **July 1, 1986**. Address inquiries to: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Centre at San Antonio, 7703 Floyd Curl Dr., San Antonio TX. 78284.

July 6-11, 1986: The World Dental Conference, Jerusalem, Israel. Deadline for submission of Abstracts: **March 15, 1986**. Contact: Rifka Boruchowicz or Dalia Raif, convention co-ordinators, Diamond International Tours Inc, 1183 Finch Avenue, Suite 203, Downsview, Ontario. M3J 2G2, 416-663-9100.

AUGUST/AOÛT 1986

August 24-27, 1986: Canadian Dental Association Annual Convention. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

August 25-29, 1986: Biennial Conference of the New Zealand Dental Association, Wellington New Zealand. Contact: Conference Secretary, New Zealand Dental Association, P.O. Box 3709, Wellington, New Zealand.



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ONTARIO—Oakville—Part-time associate in modern health-oriented dental facility. Please apply to CDA Box No. 2288.

ONTARIO—Toronto. Associate required for patient oriented quality group general practice. Experience preferred. Please reply to CDA Box No. 2283.

NEW BRUNSWICK—Associateship—Moncton, N.B. available March 1st, 1986. To assume busy practice in attractive surroundings in modern dental center. Facts and figures on request to qualified applicants. Call 1-506-384-1284 or write Dental Clinic, 1380 Mountain Road, Moncton, N.B. E1C 2T8.

OPPORTUNITIES AVAILABLE

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ALBERTA—Periodontist Wanted—A group of Dental Specialists (Endodontist, Orthodontist, and Pedodontist) are looking for a Periodontist to join them in a Dental Specialist Building. There is not a full-time Periodontist in the area. We service a drawing area of 100,000 - 150,000 people, extending from the B.C. Border to the Sask. border. Please contact Drs. Campbell, Clements, or Cram at (403) 342-5565, or write to 280, 5201 - 43 Street, Red Deer, Alberta T4N 1C7.

SASKATCHEWAN—Practice Opportunity. Space is available in a Health Centre housing ten physicians. An excellent opportunity to establish a practice which should grow quickly. Reply in confidence to CDA Box No. 2300.

SASKATCHEWAN—Porcupine Plain, a thriving community of 1000 and located in the Northeast Parkland of Saskatchewan, requires a dentist. We are located 50 miles from the next larger trading center in an excellent hunting and fishing area. Space for a clinic is available and incentives may be arranged. For further information contact: Barry Warsylewicz, Administrator,

Town of Porcupine Plain, Porcupine Plain, Sask. S0E 1H0 or phone (306) 278-2262.

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ONTARIO—Dentist, General Practitioner or recent graduate, with orthodontic interest required to assist in a busy orthodontic practice 2 - 4 days per week. Please apply to CDA Box No. 2299. Resume to include grade rankings, personal goals and references.

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NOVA SCOTIA—Dartmouth—Periodontist Wanted. Full time periodontist wanted for a large group practice which is solidly established with general practitioners and specialists in other disciplines. Please reply to CDA Box Number 2282.

UNIVERSITY OF HONG KONG—Lecturer in Children's Dentistry and Orthodontics. Applications are invited for a Lectureship in the Department of Children's Dentistry and Orthodontics. The Department emphasizes the integration of both disciplines. The appointee will teach in the area of Paediatric Dentistry, and formal training in Paediatric Dentistry or a Master of Science degree would therefore be highly desirable. The Department has excellent facilities for research and clinical practice and a well

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OPPORTUNITIES WANTED

BRITISH COLUMBIA—Full time experienced general practitioner seeking associate position in Vancouver area. Interested in all aspects of dentistry, with extensive experience in dealing with apprehensive patients. Immediate start if necessary. Please write to CDA Box No. 2296.

SASKATCHEWAN—Oral and Maxillofacial Surgeon with some experience desires associateship in an established and progressive practice. Willing to do further board examinations if necessary for licensure. Please reply to CDA Box No. 2294.

DENTAL HYGIENIST—English female, age 26, wishes to work in Canada. Eight years experience including 2 years in an American run hospital. Please call collect 01144 476 60456 or write 7 Wong Gardens, Barrowby, Lincolnshire, ENGLAND NG32 1TB.

ONTARIO—Locum/Associate available in Ontario from September 1986 for one year. 1980 Graduate, bilingual, with 5 years Hospital Dentistry experience, returning from 3 years in a Mission Clinic in Africa. Contact: Dr. Brian Eckert, Mlambe Hospital, P.O. Box 45, Lunzu, Malawi, AFRICA.

MISCELLANEOUS

ONTARIO—Space available to rent for Orthodontists, Oral Surgeons or Prosthodontists in Specialist Office in Brampton, Ontario (Toronto vicinity). Call (416) 967-1117.

OBITUARIES/NÉCROLOGIES

BADEN POWELL, H.: Born in 1901, Dr. Baden-Powell was a graduate of the University of Toronto in 1928. He was a former governor with the Canadian Dental Association and a past-President of the Alberta Dental Association. He was a resident of Calgary, Alberta, at the time of his death.

CAMPBELL, A.H.L.: Dr. Campbell was a Life Member of the Canadian Dental Association. He was a graduate of the University of Toronto in 1940 and was born in 1914. He was a resident of Vancouver, B.C. and practiced there until his retirement in 1975.

HAWORTH, D.C.: Born in 1899, Dr. Haworth graduated from the University of Alberta in 1928. He was a past-President of the Calgary and District Dental Society.

PILON, J.-P.: Né en 1936 et diplômé de l'Université de Montréal en 1962, le Dr Pilon habitait à Berthierville au moment de son décès.

SAYERS, G.E.: A graduate of the University of Toronto in 1945, Dr. Sayers was born in 1915. He was a resident of Islington, Ontario, at the time of his death.

SMALL, E.J.C.: A Life Member of the Canadian Dental Association, Dr. Small was born in 1918. He graduated from McGill University in 1951. He was a resident of Oakville, Ontario, at the time of his death.

STARK, C.A.R.: Dr. Stark, a Life Member of the Canadian Dental Association, was born in 1920. He graduated from McGill University in 1950. He was a resident of Vancouver, B.C. at the time of his death.

WALLEY, G.A.C.: A past-President of the College of Dental Surgeons of B.C., Dr. Walley was born in 1899. He graduated from the University of Toronto in 1923. He was a resident of Vancouver B.C. at the time of his death.

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- References: 1. LAMSTER, I., et al.: Clin. Prev. Dent., 6:12 (1983).
2. MENAKER, L. et al.: Ala. J. Med. Sci., 16:71 (1979).
3. ROSS, N.M., et al.: Warner-Lambert research report #955-0875 (1976).
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References: 1. Ostrom, C.A. et al., J Dent Res, 56(3):212-221, 1977. 2. Arends, J., ten Cate, J.M., J Cryst Gro, 53:135-147, 1981. 3. Silverstone, L.M., Caries Res, 11 (Suppl. 1):59-84, 1977. 4. Data on file at Procter & Gamble, Inc. 5. Mobley, M.J., J Dent Res, 60(12):1943-1948, 1981. For further information, please contact Crest Professional Services, P.O. Box 355, Station A, Toronto, Ontario M5W 1C5

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EDITORIAL 867

Dentists of Canada are urged to extend the analogy of teamwork in dentistry to the effectiveness of their national association. Only through team work can CDA achieve benefits on their behalf, the editor states.

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JCDA Cover

The colourful scene on the cover of this month's Journal depicts "Canada on Parade" — the first major event of the 1985 CDA Convention in Ottawa. The Band of the Governor General's Footguards performs, left and centre, accompanied by Piper Bill Gilmour.

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DEAD HORSES AND OTHER STORIES

“**Y**ou can't flog a dead horse.” So goes the old saying — but if you hit a stubborn one over the head with a two-by-four you'll at least get his attention.

Consider this space in the membership issue of the Journal the editor's two-by-four. I'm here to get your attention focused on some of the intangible, indeed invisible, benefits of being a CDA member. As this issue goes to all of Canada's dentists, the non-members out there are probably asking why I am flogging them again.

Because, in the words of our immediate past-President, Dr. Ralph Crawford, CDA stands for we Can't Do it Alone. And to those readers who are ready to consign this to file number 13, hold off for a moment.

As you are all aware, dentistry is a total team effort. You the practitioner depend on your dental team in the office to keep things running and to get things done. As the national organization for dentistry, CDA depends on Canadian dentists to keep things running and to get things done. You, gentle readers, are *our* dental team.

Several important issues are facing dentistry today — one of which was the subject of a CDA sponsored symposium in October. Manpower.

At that symposium, the national nature of the issue of busyness and oversupply became very clear. And the need for a national, cooperative effort to solve or alleviate the problem became very clear as well.

Such forums for expressing opinion on national issues which affect all Canadian dentists could not exist or have the impact they do without the existence of the national body. The national association for Canadian dentists — the Canadian Dental Association — is the only one that can help you with your problems, in manpower, busyness, taxation, insurance, quality of education and awareness. I say it is the only association that can help because all these problems, and their solutions, affect dentistry nationally. By joining the national body, you make the fight against problems easier and you make your voice heard in government, in schools, and in practices across the country. You may even become a part of a solution to the problems which may seem insurmountable alone — like Manpower.

Provincialism and regionalism in this country have been a dilemma for centuries. In difficult economic times like these, for dentistry and for all Canadians, can we not put our differences aside and band together under the national auspices for the ultimate good of the profession?

Its worth a thought. Even better — its worth a try.

Carolyn Hackland Editor, CDA Journal

News Update

DR. BRAD HOLMES INSTALLED AS CDA PRESIDENT

Dr. Bradley Wescott Holmes of Kenora, Ontario, was installed as CDA's 66th President, October 3, 1985.

He was also immortalized in song as "Bradley Wescott Holmes, Pride of the CDA", by the Ontario representatives to CDA's Board of Governors, that same evening.

Led by the Ontario Dental Association's Executive Director, John Gillies, the Ontario delegation started the more informal part of the evening on a note that resembled the tune of "Davy Crockett". Dressed in colorful country duds, the group included Drs. Ron Bell, Bob Schiewe, Kevin Roach, W.G. Leggett, J.R. Brookfield, R.D. Wells, Doug Smith and Bernie Dolansky. They, in turn, led the assembly of invited guests in song, much to the amusement of Dr. Holmes.

Following the musical introduction, a surprise guest was brought in to conduct an amusing "roast" of Dr. Holmes. Richard Ferguson, a long-time friend of CDA's new President, presented a highly humorous slide show of the life of Dr. Holmes, from babyhood to the present, paying particular attention to Dr. Holmes' love of hunting, fishing, gourmet cooking and his impeccable taste in clothing.

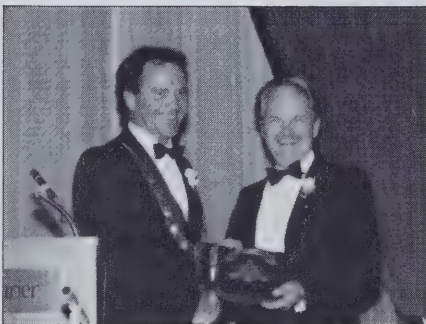
Prior to the "roast" of the new President, came the serious business of handing over the Chain of Office. While appearing somewhat reluctant, CDA's Past-President Dr. Ralph Crawford, was eventually persuaded to part with the Chain graciously.



Dr. Brad Holmes (left) suitably capped, checks the fit of the Presidential Chain of Office, while immediate Past President, Dr. Ralph Crawford, looks on. (Photo by Carolyn Hackland)



Adding considerably to the glitter of the proceedings during the Installation Dinner were the members of this distinguished group of CDA officials. Left to right: Dr. Nick Mancini, Chairman of the CDA Board of Governors, Past-President Dr. Robert Hicks, President, Dr. Brad Holmes, Immediate Past-President, Dr. Ralph Crawford and CDA Executive Director, A. Jardine Neilson. (John Evans Photo).



Dr. Brad Holmes (left) presents Dr. Ralph Crawford with the Past President's Plaque. (Photo by Carolyn Hackland)



Dr. Holmes, suitably attired in his favorite trench coat, gives Debbie Ferguson, daughter of a long time friend, an affectionate greeting. (Photo by Carolyn Hackland).



Left to right are: Dr. Holmes father, Mr. Ed. Holmes, his mother, Mrs. Nonie Holmes, Frieda Armstrong, Dr. Holmes, and Dr. Holmes' daughter, Allison, seen following his installation as CDA President. (Photo by Carolyn Hackland).



Dr. Crawford, left, immediate Past-President of the CDA, appeared a bit reluctant to pass the Presidential Chain of Office to Dr. Brad Holmes, at the Installation Dinner in Ottawa. (Photo by John Evans).



This rag-tag group of ODA troubadours provided a bit of levity during the less formal portion of the Installation Dinner. Noted in the group, from the left, were: Drs. Ron Bell, Bob Schiewe, Kevin Roach, W.G. Leggett, J.R. Brookfield, R.D. Wells, Doug Smith, ODA Executive Director John Gillies, and Dr. Bernie Dolansky. (John Evans Photo).

In his inaugural speech as the new President, Dr. Holmes paid tribute to Dr. Crawford's contributions as President, and touched on some of the ongoing Association priorities for the next year.

Dr. Holmes also paid tribute to his parents and daughter Allison, and to long time companion, Frieda Armstrong, thanking them for their support during his hectic year as President-Elect.

In a lighthearted vein, Dr. Holmes was presented with a presidential "cap" and a trench coat, to protect him from the elements. The presentation of the Trench coat, by Debbie Ferguson, daughter of Dr. Holmes' long time friends, Richard and Bev. Ferguson, set the tone for the remainder of the evening.

Dr. Holmes, who is a past president of the Ontario Dental Association, graduated from the University of Toronto's Faculty of Dentistry in 1965. He maintains a private practice in Kenora, Ontario.

U.S. PROGRAM INSURES EQUITY PROTECTION FOR DENTAL PRACTITIONERS

A new program established by a California company is designed to assist in the problems associated with the death or permanent disability of a dentist who is in a solo or small group practice.

The company, headed by Dr. R. Kent Utley includes in its assistance, help to the dentist's wife and family in supervision of the practice, management of the staff and patient care.

Practice Preservation Inc, was formed by a group of practicing dentists, with an interest in this area. The company's program provides experienced professional personnel to the office within 36 hours of the death or permanent disability of the practitioner taking place. The professional personnel assume the responsibility of supervising the practice, informing the patients and the dental community of the circumstances and consulting with the estate, attorneys and accountants.

"The advantages of having an experienced professional team in place not only relieves the family of the worrisome responsibilities of the practice, but also solves the potential problem of relying on those who may not be properly trained, who may have a conflict of interest or who do not have the time necessary for a full commitment," said Dr. Utley.

The program can also save the estate some costs. With experienced dentists and administrators in place immediately, the practice can continue with minimal interruption while arrangements are made for the

sale and/or transfer of the practice. The annual fee charged for the service is from \$270 to \$1,150 U.S., depending on age.

Practice Preservation Inc. is located at 990 W. Fremont Avenue, suite U-1, Sunnyvale, California, 408-739-4224.

DR. JOHN ROBERTSON NAMED CDA PRESIDENT-ELECT

Dr. John R. Robertson, 46, of Summerside, Prince Edward Island, was named president-elect of the Canadian Dental Association at the annual meeting of the Board of Governors in Ottawa in October.

Dr. Robertson, who has been extensively involved in dental organizations, locally, nationally and internationally, will assume the office of CDA President in the fall of 1986.

A graduate of Dalhousie University, Halifax, N.S., in 1964, he served with the Royal Canadian Dental Corps from 1961 to 1969 and rose to the rank of Major. Since that time he has maintained a private practice in Summerside.

Dr. Robertson is a past-president of his PEI Dental Association, a former member of the CDA Council on Health Care and of the Advisory Board, Dental Assisting Program, of Holland College, Charlottetown, PEI. He served as an examiner on the National Dental Examining Board and his term was extended by that body.

He holds memberships and has received honors from a wide range of dental organizations. He is a member of the Academy of General Dentistry, the Fédération Dentaire

Internationale, the United States Dental Institute and the American Academy of Gerontology. He is a Fellow of the International College of Dentists.

Dr. Robertson serves as a member of CDA's Executive Council as a representative of the Atlantic Provinces.

In addition to his professional involvement, Dr. Robertson is also active in community organizations. He is a past member of the Summerside YMCA Mens' Club and a past cubmaster in the Scouting movement. He has also given service as a member of Board of Managers of Summerside's Presbyterian Church.

Dr. Robertson is married to Elizabeth Ann and they have three children — Catherine, Latricia and Trevor John.

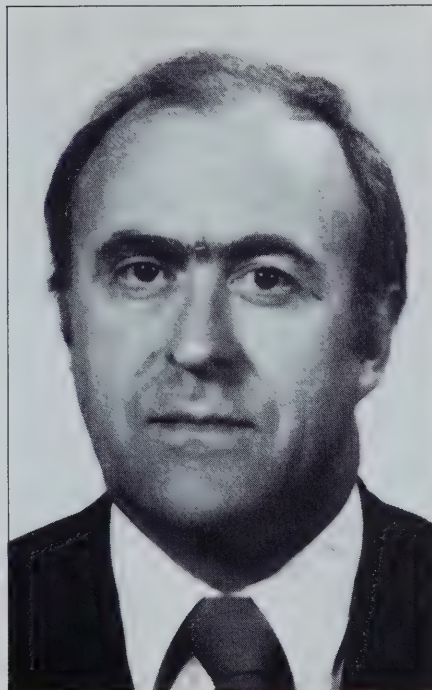
In his limited free time, he enjoys hunting, sailing and golf.

CDA APPOINTS NEW INFORMATION OFFICER

Lise Marie George, a native of Montréal, has assumed duties as Information Officer for the Canadian Dental Association, based at CDA headquarters in Ottawa.

The fully bilingual Ms. George succeeds Mrs. Pat Cunningham, who retired from the position earlier this year.

A graduate of Carleton University and the University of Ottawa, in English literature and communications, respectively, Ms. George had previously been with the Public Relations Branch of the RCMP, in Ottawa. She was involved as Assistant Editor of the RCMP Quarterly magazine, following a



Dr. John Robertson



Lise Marie George

period as Writer-Editor with the RCMP Staff Relations Branch newsletter.

Following graduation from the University of Ottawa in 1980, she served as Promotional Projects Coordinator for the Metric Commission, Canada. Later, she was engaged as Public Enquiries Officer for the Communications Branch, Energy, Mines and Resources, Canada.

At CDA, Ms. George prepares and publishes the CDA Communiqué, arranges news conferences, prepares press releases and statements, arranges media interviews and responds daily to queries about dental matters from the media, other agencies and the public.

In her spare moments, Ms. George is an avid reader of literature and mystery novels, and enjoys films, theatre, music, cycling and skating.

RCDC HOLDS 20TH ANNUAL CONVOCATION

The Royal College of Dentists of Canada recently held its 20th annual convocation.

The convocation, which was held just prior to CDA's national convention on September 28, honoured two distinguished dental specialists. Both Dr. Jens Pindborg of Copenhagen, Denmark and Dr. Fred Henny of Birmingham, Michigan, were made Honorary Fellows of the College.

Dr. Pindborg's numerous contributions to the field of oral pathology, including his discovery of the tumour which now bears his name, were detailed in an address by Dr. James Main, a noted Canadian oral pathologist. Dr. Henny, an American oral surgeon who was instrumental in getting oral surgery training programs started in the

U.S., and gaining admission for Canadians to those programs, was honored for his contributions in oral surgery education. He was praised for his work in the field of education by Dr. E.W.P. Luxford, prior to receiving his honorary fellowship.

Among the eight dental specialists receiving Fellowships in the College was Dr. John Hardie, Chairman of this Journal's Editorial Board, who received his Fellowship in oral pathology.

Fellowships were also conferred upon Drs. William Abbott (oral and maxillofacial surgery); Thomas Daley (oral pathology); Henry Dick (oral pathology); John Gay (oral and maxillofacial surgery); Martin Gelfand (endodontics); Subhas Marwaha (orthodontics), and Aubrey Ringel (endodontics).

In addition, 62 new members were admitted to the Royal College. Of these 62, two married couples were admitted at the convocation.

Drs. Monique and Stephen Fitch and Drs. Edward and Jennifer Grodecki were granted memberships in the College. Dr. Monique Fitch specializes in periodontics, while her husband, Dr. Stephen Fitch is an oral and maxillofacial surgeon. Both the Fitches are from Halifax, Nova Scotia. Dr. Edward Grodecki is a specialist in oral and maxillofacial surgery, while Dr. Jennifer Grodecki is a paedodontist. The Grodeckis are practicing in the metro Toronto area.

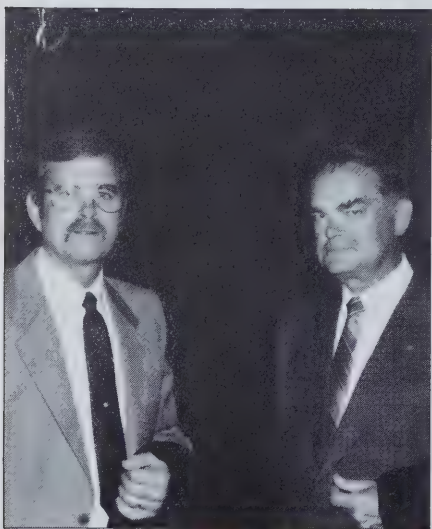
Following the convocation ceremonies, the RCDC annual dinner was held in the Adam Room of the Chateau Laurier, in Ottawa. Dr. Michael Crompton, President of the Royal College and a former president of CDA, welcomed guests, new Fellows and new members. Those past-presidents of the College who were in attendance received certificates of appreciation.



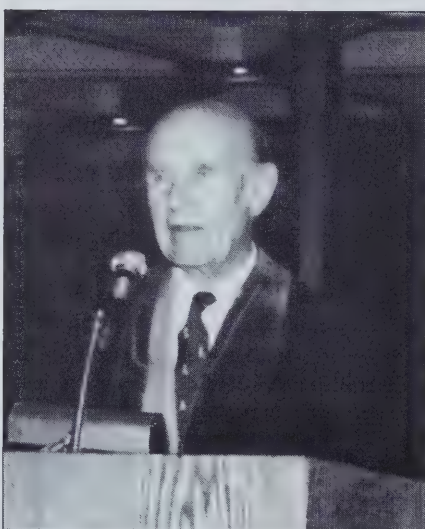
Dr. Jens J. Pindborg, recipient of an Honorary Fellowship for his work in oral pathology, expresses his thanks to the College.



One of the married couples, Dr. Monique Fitch (L) and Dr. Stephen Fitch (R) who were granted membership in the Royal College. The Fitches are from Halifax, Nova Scotia.



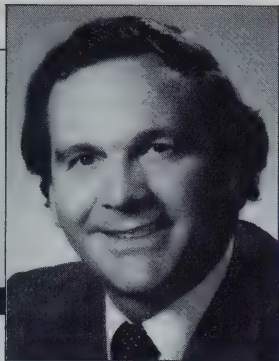
Dr. Henry Dick (L) and RCDC President Michael J. Crompton (R) chat before the Convocation ceremonies begin. Dr. Dick was admitted as a Fellow to the College.



Dr. Fred Henny, who was honoured with an Honorary Fellowship for his contributions to dental education, thanked the College members.



Dr. John Hardie, centre, Chairman of CDA's Editorial Board, poses with his family following receipt of his Fellowship in the Royal College. Photo shows (L-R) Julia Hardie, Mrs. Mary Hardie, Dr. Hardie and Adele Hardie.



PRESIDENT'S COLUMN

Dr. Brad Holmes

REFLECTIONS ON A CAPITAL CONVENTION

In September, the CDA held its first convention in our National Capital since 1971. And wasn't Ottawa decked out in all her finery for the event? The grass was still green, the flowers were in bloom and the leaves had all started to turn to shades of red, orange and gold. Having just returned from the FDI Congress in Yugoslavia right before the Convention, it was a real thrill to be back in Canada, especially in Ottawa, to witness the splendid fall colours.

To those of you who attended the convention, wasn't it marvellous? To those of you who did not attend: could I ask why not?

By all measurements, except the number of attendees, this convention was a huge success. In 1971, the convention in Ottawa had 1300 dentists register and in 1985, in the same location, registration of dentists was down to 700. But more about that later.

General Convention chairman, Dr. Don O'Connor, Scientific Chairman, Dr. John Hardie, Social Chairman, Dr. Bruce Robinson and a host of other convention organizers held a well planned convention with varied programs. It indeed provided something for everyone.

The convention got underway with the now traditional CDHA Fun Run. Dr. Patrick Roy, an Ottawa dentist, was the official winner of the event, in spite of the fact that a team of Tweedle Dee and Tweedle Dum (myself and our esteemed past-President, Ralph Crawford, respectively) crossed the finish line (several times) ahead of the winner. The fact that we were riding a bicycle built for two, took several short cuts and ran over two race marshalls, seemed to disqualify us, however.

The opening ceremony struck a chord of nationalism in all who attended. Delegates from each province, the Canadian Forces Dental Service and the Northwest Territories carried flags of their areas on to the stage, to the accompaniment of the Governor General's Footguards Band, playing that old standard by Bobby Gimby: CAN-A-DA. The program was excellent, followed by copious quantities of good food. Throughout this convention, we heard many good comments as well about all the programs: both scientific and social.

A unique feature of this year's program was a CDA hosted press conference organized by Manifest Communications. The press conference dealt specifically with the oral manifestations of AIDS, and featured Dr. Jens Pindborg, a world famous oral pathologist from Copenhagen, Denmark and Dr. John Hardie, Chief of Dentistry at the Ottawa Civic Hospital, and an oral pathologist of some note in his own right. The media interest and presentation was impressive and generated sufficient questions from the 20 or more media representatives to keep both gentlemen busy for almost an hour. The results of this press conference were witnessed in many of the major print and electronic media, including a front page story of the Globe and Mail, and coverage on the CTV news.

It is CDA's intention to continue the flow of information on AIDS and AIDS-related diseases to our members. We are privileged to have Dr. John Hardie as the dental representative to the National Advisory Committee on AIDS. Dr. Hardie has published several articles on the topic and as national dental advisor on AIDS he has presented current findings to CDA's Council on Health Care.

Two of the social highlights of the convention were the Presidents' Gala and the Bytown Bash. The Gala lived up to its name and was a glittering affair in honour of Ralph Crawford, CDA's 1984-85 President. Well attended and well enjoyed, the Gala featured gourmet food and music provided by the Stevens and Kennedy band.

The Bytown Bash was a dance of a different colour: fun and nonsense replaced black tie and tails. Log sawing was the premier event of the evening, with all contestants winning some kind of prize. Mine was a disposable bikini which almost fit (almost fit one of my knees, that is!) This was another well attended event, with excellent food and excellent fun. The Family Brown provided the musical entertainment.

So — Why the small number of registrants??

It is important for CDA to find out the answer to this question, as future convention planning is essential for continuing quality conventions. The Executive Council will be reviewing CDA convention activity over this coming year. If any Journal readers have any suggestions or comments we would be pleased to hear them at CDA headquarters.

To wrap up my comments on conventions, please book off August 24 through 27 1986, to attend the CDA convention in Halifax, Nova Scotia. To those of you who haven't sampled the fabulous Maritime hospitality you have a real treat in store. To those of us who have, we can hardly wait to return. Plan now to enjoy Canada's friendly Atlantic provinces. See you there!

EXECUTIVE DIRECTORS REPORT ON THE 1985 ANNUAL BOARD OF GOVERNORS MEETING

Highlights and Principal Decisions

The following is a report highlighting events of the Annual Meeting of the CDA Board of Governors, held in Ottawa on October 3-4, 1985.

Government Relations Committee

The Board approved the formation of a Government Relations Committee, as a Standing Committee of the Executive Council. Under the Chairmanship of Dr. Ron Markey of Richmond, B.C., goals of the Committee include service to the dental community and the public, through activity with government which will give effect to the best possible dental and oral health care to Canadians. The Committee will act as a focal point for the coordination of all government relations activity at the national level, and will ensure effective input of the profession to development of government policy and programs as they affect dentistry, and their delivery.

Taxation

The Chairman of the Taxation Committee, Dr. Robert Hicks of Vancouver, brought Governors up to date on the successful conclusion of the Professional Management Company issue.

Agreement was reached with Revenue Canada — Taxation, to the effect that, as a general rule, a 15 per cent "mark-up" on all services (and direct costs) provided by a Management Company to a professional practice will be accepted as a reasonable expense of that professional practice. Specific information was provided to all Canadian dentists on this item in a letter from the CDA distributed in May of this year.

In a recent letter, Revenue Canada informed the Association that an Information Circular is being prepared, which will outline the present policy regarding Professional Management Companies. This Information Circular is being formulated as an alternative to the revision of Interpretation Bulletin 189, which would have been a far more complex and lengthy procedure.

The Board was informed that discussions are ongoing with both the Department of Finance and Revenue Canada — Customs & Excise, on the recent repeal of the sales tax exemption on dental instruments, dental materials, X-ray articles and film, etc. Should the CDA be successful in its representations prior to July 1, 1987, changes in the application of the sales tax

would result in refunds of sales tax paid, retroactive to July 1, 1985.

CDA Application to Host the Congress of the Fédération Dentaire Internationale

After review of financial and organizational implications to the CDA, the Board approved the submission of an application for Canada to host the 1993 Congress of the Fédération Dentaire Internationale in Vancouver, B.C. An alternate date of 1994 was also approved by the Board, in the event that the 1993 bid is unsuccessful.

Roles and Responsibilities Committee

A report on the work of the Roles and Responsibilities Committee was presented to the Board by Committee Chairman, Dr. John Robertson. Role schedules for the Executive Council, Management Committee, Chairman, Board of Governors, Executive Director, President, and President-Elect will be circulated to Corporate Bodies for further input, and a subsequent report presented to Governors at the Interim Meeting in April, 1986.

Membership/Fee Increases

The Board approved a 10.6 per cent increase in membership fees effective in January 1, 1987. The 1987 fee for active members will be \$260.00. All other membership fee categories will be increased proportionately.

Corporate Fee Increase

Following a review of the background and present status of corporate fees, Governors approved that a request be made to Corporate Bodies to increase the corporate fee from \$8.00 to \$10.00 per member. The licensing bodies will be requested to increase their fee from \$5.00 to \$10.00 per member, with both increases taking effect as of January 1987.

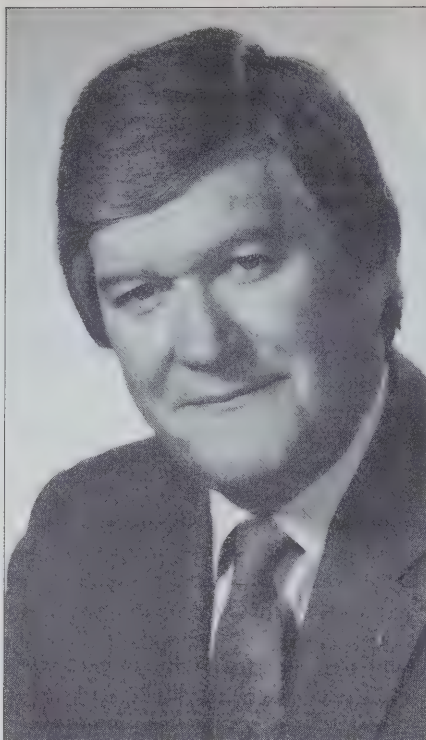
CDA Building, Ottawa

The Board approved the sum of \$60,000.00 to finance garage resurfacing and the expansion of outside parking facilities of the CDA Headquarters building in Ottawa. Expansion of parking was deemed necessary to enable the CDA property to maintain its leasing attraction, in the face of increasing competition from other properties leasing in the immediate area.

Guidelines — CDA Convention/Specialty Groups

Guidelines for Specialty Groups meeting in conjunction with the CDA Convention were approved by the Board.

These guidelines outline procedure to be followed by the CDA and Specialty Groups,



Mr. Neilson

in order to ensure the continued success of joint meetings.

Guidelines — National Symposia and Conferences

The Board approved Guidelines for CDA-sponsored National Symposia and Conferences. Under these Guidelines, the CDA will assume funding responsibility for meeting rooms, luncheons, receptions, speakers' honoraria and expenses and the expenses of CDA-required representation.

Membership

The Board was informed that current membership in CDA of Ontario dental society members is in the 50-70 per cent range, with only four societies having a CDA membership level below 50 per cent.

Overall membership figures for Ontario are lower than in 1984; it is felt this is due in part to the transfer of considerable numbers of active members to the Life Member category.

There has been a small increase in membership from Quebec, which is a reversal of the trend of the past two years.

A change in Membership Categories was approved by the Board, combining the Associate and Supporting member categories. Details on this change will be supplied in a future issue of the Journal.

Consumer Product Recognition

Following review of the Report of the Committee on Consumer Product Recognition, the Board approved the Committee's

expanded role in considering products containing pharmacological agents with therapeutic benefits aimed at controlling plaque. The development of CDA plaque control guidelines has been tabled, pending review of ADA guidelines in this area, which are not expected to be approved before early in 1986.

Third Party Dental Plans Committee

Information was provided to the Board on the proposal by the Canadian Federation of Labour to establish union dental clinics across Canada. CDA representatives have met and will continue to meet with the CFL to offer professional, constructive alternatives to the closed-panel nature of such clinics, and to ensure that the Dental Profession's points of view are considered in their development.

Finances

The Board approved the 1986 budget, which projects 1986 revenues at \$3,181,027, and expenditures for activities and member services at \$3,506,199. The audited statement for 1985 will be presented for approval at the 1986 Interim Meeting in April, and published in a subsequent issue of the Journal.

CDA Manpower Symposium

The CDA's Manpower Symposium will be held at the Sheraton Centre, Toronto, October 18-19, 1985. Program and registration information has been published in the CDA Journal.

CDA Conventions

Planning for the 1986 Convention in Halifax is well under way, under the Chairmanship of Dr. Ian Vogan. Dr. J.C. Giguere of Sillery, Quebec, has been appointed Chairman of the CDA's 1987 Convention in Quebec City. Edmonton, Alberta, will be the site of the 1988 convention, which will be chaired by Dr. Roger Ellis of the University of Alberta.

Policy Advisory Board — National School of Dental Therapy

In consultation with the CDA and the Saskatchewan College of Dental Surgeons, Health and Welfare Canada has established a Policy Advisory Board of the National School of Dental Therapy. The College has agreed to representation on the Board, but intends further discussion and investigation of voting privileges.

CDA Participation Agreement

The QDSA has re-applied for malpractice insurance through the 1984 Participation Agreement. The Board approved re-entry

to the malpractice insurance program, on condition that the QDSA sign the Participation Agreement as amended in 1985.

Negotiations continue between the QDSA and CDA concerning the signing of the 1985 Participation Agreement. As the Agreement is still unsigned, the Board directed the CDA to proceed with notification to Quebec dentists concerned, on the status of their malpractice insurance as of January 1, 1986.

Restructuring CDSPI Board of Directors

Following direction of the Governors at the 1985 Interim Meeting, restructuring of the CDSPI Board is to be considered at the October 5 annual CDSPI meeting. An update on restructuring will be provided to Governors at the next meeting.

Awards

Honorary Membership, the Association's highest award, was bestowed on the late Dr. Lorne Edgar MacLachlan of Ottawa.

Dr. Arthur Wood of Islington, Ontario, was the recipient of the Distinguished Service Award for his outstanding achievements in the field of sports dentistry.

The Canadian Dental Research Award was granted to Dr. Lawrence Yanover, for his paper entitled "A Clinical and Microbiological Examination of Gingival Diseases in Parapubescent Females".

Details on the 1985 awards and recipients were published in the August issue of the Journal. As approved by the Board, the CDRF award will, in future, be given on a biennial basis, and the amount awarded will be increased from \$1,000 to \$2,000.

Canada Health Act

The Board reviewed a brief sent to Health and Welfare Canada concerning the Canada Health Act, outlining concerns expressed by the Canadian Association of Oral and Maxillofacial Surgeons, and a reply received from the Minister. The Board has approved the formation of a sub-committee of the Council on Hospital and Institutional Services, to retrieve and coordinate information from the provinces on problems and implications relative to the Canada Health Act.

CDA Prelicensure Conference

A CDA Conference on Prelicensure, to be held in Montreal on February 24 and 25, 1986, was approved by the Governors. The Conference will provide a forum for discussion of the potential of introducing a mandatory prelicensure year in dental education programs.

1986 Teaching Conference — Halifax

"The Teaching of Periodontology in a Program Leading to a DDS/DMD Degree", will

be the topic of the 1986 Teaching Conference, to be held in Halifax in late August.

Council on Health Care Restructuring

The Board approved, on a one year trial basis, a restructuring of the Council on Health Care. The new structure will allow Council to respond more quickly to issues, while preserving regional representation, and further improve Council's ability to serve as an expert resource in specific areas.

Dental Awareness Program

The Board was provided with an update on the past year's activities of the Dental Awareness Program. Significant achievement was outlined in the increase in visibility of dental health issues, the development of practice enhancement resources and the development of targetted marketing efforts. Plans for the second year of the program were reported — aimed at the further expansion of public understanding of dental health, and increased demand for member services.

Insurance and Services

On recommendation of the Council on Insurance and Investment, the Board approved the inclusion of a LTD and office overhead conversion privilege feature, which contains a non-cancellable, guaranteed renewable policy. Terms and conditions, and further information are available from CDSPI.

The Board also approved benefit changes in Life Insurance, Accidental Death & Dismemberment, LTD, Office Overhead, and General Insurance.

Life Plan Surplus

The QDSA expressed concern to the Board on the disposition of the Life Plan Surplus. The report presented by the QDSA will be studied in detail and recommendations provided to the Board on action necessary.

TWO TORONTO DENTISTS SHARE ENTERTAINING BACKGROUNDS

Two Toronto dental practitioners who work for the city's Department of Public Health have worked with entertainers — one in Saigon's bordellos and one in Canada's opera scene.

Dr. Jack Lee came to Toronto recently via, among other places, the bordellos of Saigon. An American, Dr. Lee attended dental school in Washington, D.C. and was drafted in 1969. He joined the U.S. Navy and got his first practice in dentistry at the marine base where he was stationed.

"In the morning I had patients who were



Dr. Jack Lee

going to Vietnam, and in the afternoon I had those who had been," he said. "It was my job to see that no dental problems developed in fighting troops that would keep them from combat."

When his turn came to go over to Vietnam, Dr. Lee said he did not carry a gun. His only weapon was his dental equipment and on weekends he would go up to villages and treat villagers on both sides of the conflict. During the first six months he also ran the VD clinic.

"I was Papa-san of the bars. If over 50 per cent of the prostitutes were infected, the bars were closed down, so it was in the Mama-sans' interests to keep their girls clean."

His most routine period in Vietnam came on an engineless boat in the Mekong River. "We had U.S., Australian, Korean and Vietnamese patients, just like any routine practice," he said.

Following his return to the U.S., Dr. Lee married, adopted a Vietnamese orphan child and took graduate studies in public health administration.

He joined the Vancouver Health Department in 1978. While there he specialized in gerontology and was named president of the B.C. Public Health Association. Dr. Lee recently moved from British Columbia to Toronto where he is the newest member of the city's Public Health Department.

While Dr. Bruce Shaef shares his colleague's interest in public health dentistry,

his involvement in the "entertainment" world is slightly less exotic. Dr. Schaefer is an opera singer.

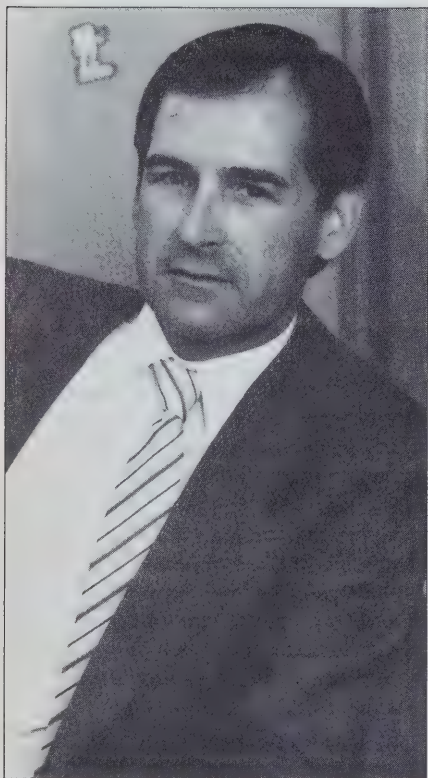
Now a permanent member of the chorus in the Canadian Opera Company, Dr. Schaefer's interest in music goes back to his childhood. He sang as a child in church choirs and at music festivals, and supported himself through dental school at the University of Toronto by ushering at Toronto's O'Keefe Centre. In 1965, while he was practicing dentistry in Ottawa, Dr. Schaefer joined a musical theatre group, performing as Uncle Mac in the Sound of Music and as Lancelot in Camelot.

Following a move to Toronto 13 years ago, he joined the Yorkminster Park Baptist Church choir as soloist and was persuaded by a fellow choir member, Gaynor Jones, to audition for the Opera Company. At the audition, he was picked for the chorus of 50 voices, much to his surprise.

"There were hundreds of singers at the audition and I was really intimidated because I wasn't in music full time," said Dr. Schaefer.

Currently a member of Toronto's Glenview Presbyterian Church choir, the baritone is active in the Mississauga Choral Society. He still takes voice lessons and recommends singing as a good therapy for the stress of dental practice.

"I think of singing as a refined, highly cultured scream. It's good therapy, filling your lungs," he said.



Dr. Bruce Schaefer

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on October 25, 1985.

<i>Common Stock Fund</i>	\$95.80793
<i>Fixed Income Fund</i>	\$47.84071
<i>Money Market Fund</i>	\$32.91236
<i>Balanced Fund</i>	\$19.17561

Total assets (market value) of the plan were \$47,425,026 as of October 28, 1985.

The previous month's figures, as of September 27, 1985, stood as follows:

<i>Common Stock Fund</i>	\$94.69831
<i>Fixed Income Fund</i>	\$47.23854
<i>Money Market Fund</i>	\$32.70478
<i>Balanced Fund</i>	\$18.93923

Total assets (market value) of the plan were \$46,799,972.80 as of September 27, 1985.

Guaranteed Funds Interest Rates as of October 28, 1985:

1 year — 8.90%	4 year — 10.55%
2 year — 9.70%	5 year — 10.90%
3 year — 10.35%	

For further information write to: Canadian Dental Service Plans Inc., Ste. 600, 2 Lansing Square, Willowdale, Ontario M2J 4Z3 or call the central information services of CDSPI at 1-800-268-5418 (toll free number for Western Canada, Atlantic Canada and Ontario for Code 807 only, 1-800-268-3411 (toll free number for Quebec and Ontario except Code 807), and 497-7117 (Metro Toronto area).

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CDA Convention ~ 1985

CONVENTION PAGEANTRY: 'CANADA ON PARADE'

Patriotism and enthusiasm of delegates from coast to coast was inspired Sunday evening, September 29, when "Canada on Parade" was staged in the reception area of the Ottawa Congress Centre.

Following a reception, the scarlet-clad, bearskin-topped members of the Governor-General's Footguards Band paraded in to the mirrored room to the beat of stirring martial music.

The band then proceeded to play a medley of military tunes. A highlight was the added attraction of skillful piping by tartan-clad Bill Gilmour.

The Parade

And then the "Parade" began.

Delegations from each province followed their provincial flag bearer onto the stage,

to be greeted by CDA President Ralph Crawford and Convention Chairman Dr. Donald J. O'Connor.

Every province was represented and Newfoundland did NOT arrive half an hour later. The Yukon was also represented and Brig Gen James Wright proudly carried a new Canadian Dental Corps flag onstage.

Past President Dr. Ralph Crawford opened the event with a welcoming speech to delegates.

Master-of Ceremonies Rollie Hammond of Ottawa offered a tri-lingual welcome and spoke of upcoming social attractions during the Convention.



Brigadier General J.N. Wright, representing the Canadian Forces Dental Service presents the Canadian Forces flag to Dr. Crawford. Directly behind Brig. Gen. Wright is Col. Peter MacQueen, a member of the Forces delegation.



Following the music from the Governor General's Foot Guards Band, delegates from all 10 provinces, the Northwest Territories and the Canadian Forces Dental Services, carried in flags representing their places of origin. This photo shows the Ontario delegation, headed by ODA Executive Director, John Gillies, who is obscured by the Ontario flag, presenting the flag to CDA past-President Dr. Ralph Crawford. Behind Mr. Gillies is Mrs. Gillies and Dr. Kevin Roach, an Ontario member of the CDA Board of Governors.



Dr. Joe Brown, a member of CDA's Convention Committee carries the Canadian Flag on behalf of the Committee, for presentation to Dr. Crawford.



All flags are shown standing proudly on the stage. It truly is, in this photo, Canada on Parade.



Dr. Don O'Connor, Chairman of the CDA Convention for 1985, thanks the delegates for attending the convention and exhorts all those in attendance to "have fun!"



The Vernon Isaac Quartet entertained delegates at Sunday's Canada on Parade reception, during the dinner hour, just prior to the beginning of the full fledged festivities.



The Governor General's Foot Guards Band started the Canada on Parade revelry rolling, with some rousing renditions of popular and martial airs.



Dr. J.C. Giguere, CDA's Executive Council representative from Quebec, enthusiastically presents Quebec's flag to Dr. Crawford.

DR. J.J. PINDBORG ALLAYS PANIC ABOUT THREAT OF AIDS

In a late change in subject matter, Dr. Jens Pindborg, of Copenhagen, Denmark, one of the foremost authorities in the world on oral diseases, spoke to his CDA Convention '85 audience about the "drama of AIDS."

He said the apprehension began in 1981 with the first reports of the hitherto unknown disease being diagnosed in a young American homosexual.

Since that time, there has been a "fantastic" escalation in the number of diagnosed cases. The total in the United States is now more than 14,000, Dr. Pindborg said.

AIDS cases are being multiplied by two every six months. The cases are now increasing very much in quantity in Europe also, he told his audience of more than 400.

Now, he said, you can't open a newspaper without seeing "AIDS" — be it related to medicine, legal or sociological fields. The newspaper coverage is "sober indeed, suggesting a hysteria, a kind of panic, to the extent that people are beginning to fear it is very contagious." It is being compared, he added, to the Plague of the Middle Ages. "We are dealing with diseases for which we have no treatment."

He then set out to provide "some pertinent facts about all aspects of the disease, and all manifestations that may be associated with AIDS."



Dr. Pindborg

The danger of contracting the disease, he noted, has been greatly over-blown.

Oral signs

Dr. Pindborg told his capacity audience that "if we have a patient with signs of candidiasis, there should be a suspicion of AIDS or Pre-AIDS."

In AIDS, opportunistic infections is the "key word", he said, because the defence system of the body has been knocked out.

It is very important when dealing with AIDS to be aware that there may be multiple opportunistic diseases, Dr. Pindborg said.

Outstanding research work is being carried out both in the United States and France, he said. "They know a virus is responsible."

AIDS has been recovered from human blood, plasma, seminal fluid and saliva — "also tears," he noted.

Dentists fear contagion

"The fear arises — what is the risk to we as dentists, with saliva on our fingers? We live in people's mouths," Dr. Pindborg said.

In San Francisco, where so many men are gay, he said dental hygienists have been performing prophylaxis, etc., during the five years before AIDS was first reported in 1981, but nevertheless, while the virus was incubating, and not a single case of AIDS has been reported among such hygienists.

Therefore, he said, the risk of infection through saliva is "very minute. There is not one single case where saliva has been the infecting fluid."

While the incidence of AIDS has been very high among homosexuals and a significant proportion have been intravenous drug users, some unusual aspects have been discovered. He said AIDS cases were discovered in Zaire in Africa in 1983, by a French researcher. Homosexuality, blood transfusions and drug abuse are not factors there, he said, yet the incidence of AIDS was found to be the same as in the United States and Europe. Hence, he said, people in developing countries are now very cautious.

Thrush is one of the oral signs of AIDS and may not be confined to the palate, but extend on to the cheeks and throat, making eating difficult and miserable.

Another indicator of AIDS is oral or "hairy" leukoplakia, Dr. Pindborg said. This too is noted mainly among male homosexuals. It is associated with the herpes group of viruses. The lesion has a corrugated surface which, under the microscope, mimics hairs. These may be an indicator of Pre-AIDS, Dr. Pindborg advised. "This is important for dentists to know."

Early diagnosis may prevent the contraction of AIDS in such cases, he said, just as the manner in which leukemia may be prevented.

"The chances are very high that Pre-AIDS will develop into AIDS, therefore the presence of "hairy" leukoplakia is very significant."

Read dental journals

Dr. Pindborg urged dentists to read the papers published in "our national dental journals. This is the least you can expect of our dental journals. This can help prepare dentists to deal with patients who have manifestations of AIDS."

Dealing with patients who have these manifestations can be a challenge to a dentist, he said. "They must be handled with tact and with care."

When a patient presents with leukoplakia lesions, he should be referred to the proper professionals, or a biopsy should be taken. Patients should be treated as hepatitis patients, Dr. Pindborg said. "Hepatitis is much more contagious than the AIDS virus."

'Fragile' virus

"AIDS virus is very fragile. If it is heated to 50°C for 30 minutes, it will die. It can also be made inactive chemically" he said. This can be achieved in an alcohol solution. "However," he said, "if you irradiate the virus, it will not die."

Gloves and masks

He urged dentists and dental personnel that in treating such a patient "you must have gloves on, and masks. And you must take care to sterilize your instruments."

"However," he concluded, "the risk of transmission (in the dental treatment context), has been grossly exaggerated!"

Dr. Pindborg was optimistic that there would be very quick development in the next two years "to devise an effective treatment for AIDS patients and the development of a vaccine."

Canadian spokesman

Dr. John Hardie, who chaired the Convention's Scientific Program Committee and is himself a Canadian authority in the field of AIDS and Dentistry, termed Dr. Pindborg's lecture "a dramatic one by an outstanding teacher."

In response to a question about possible hazards in Hepatitis B vaccine, Dr. Hardie said "it is entirely free of the AIDS virus."

HEALTH SCREENING ATTRACTED CAPACITY PARTICIPATION

The free health screening for dentists, organized by the Canadian Dental Association and funded by the Canadian Fund for Dental Education (CFDE), Canadian Dental Service Plans Inc. (CDSPI) and the Merck-Frosst firm, attracted a more-than-capacity participation, and high commendation from many dentists.

The service was originally intended for the first 162 volunteers, but in view of the interest shown, the tests were extended to about 170. Even at that total, some were turned away.

The screening was the first project of its kind ever conducted at a CDA Convention.

The value of the screening was indicated by comments from dentists to the effect that "it's about time" and others, which described the tests as "a priority that should have occurred sooner."

Dr. Bob Elder, until recently Chief of the Department of Laboratory Medicine at the Ottawa Civic Hospital, was impressed by the fact that dentists showed such an "exceptional degree" of concern about occupational health and safety. He had anticipated some difficulty recruiting patients for the tests. Dr. Elder, a specialist in medical microbiology, officiated during the screening sessions.

Known and unknown hazards

The tests were intended to reveal any known occupational health hazards among dentists. The questionnaire they filled out was intended to reveal any further hazards not previously known.

When the individual dentist arrived for his appointment, a blood sample was taken, along with hair and fingernail samples. A

physician then recorded weight, height and blood pressure, and recorded an assessment of the dentist's general fitness.

Samples taken were subjected to a number of tests, including: Blood chemistry (SMAC) and serologic tests for: Hepatitis B antigen and antibody; Epstein-Barr virus antibody and HTLV III antibody.

Results were sent to those dentists tested by the Ottawa Civic Hospital's medical and technological staff. Strict confidentiality of patient records was observed throughout the procedure.

In addition to the dentist's personal confidential assessment of his or her own health status, the screenings and the questionnaire information have provided a database which the screening committee describes as having "tremendous potential for research purposes."

Committee members

Members of the committee on health screening included: Dr. Patrick Blahut, Department of Community Health and Preventative Dentistry, Baylor College of Dentistry, Dallas, Texas, who was chairman; Dr. John Hardie, Chief of Dentistry, Ottawa Civic Hospital, Col. Peter MacQueen, DDS, Director, Dental Plans and Requirements, Canadian Forces Dental Services; Mr. Brian Henderson, Director of Accreditation, CDA; Miss Linda Teteruck, Director of Educational Services, CDA; Mrs. Ann Lodge, Convention '85 Coordinator, and Kim Elmslie, Health and Welfare Canada.

The committee expressed appreciation to the medical laboratory personnel and the residents at the Ottawa Civic Hospital for the "tremendous support" in conducting what was a highly successful screening service.

DR. EUGENE WILLIAMSON DELIVERS GRIEVE MEMORIAL LECTURE

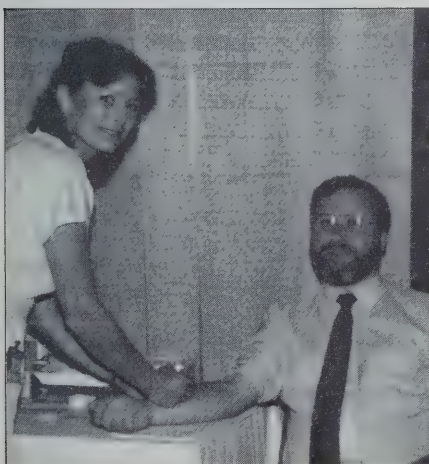
Dr. Eugene H. Williamson, Associate Professor of Orthodontics, and Associate Professor of Anatomy at the Medical College of Georgia, School of Dentistry, Augusta, delivered the 1985 Grieve Memorial Lecture at the CDA Convention '85.

Introduced by Dr. Ian M. Milne, President of the Canadian Association of Orthodontists, Dr. Williamson spoke on "Diagnosis, Prevention and Management of TMJ Dysfunction."

Dr. Williamson, described as a prominent "educator and innovator" by Dr. Milne, said he noted that from 35 to 50 per cent of his adolescent patients suffered from dysfunction — disc displacement. He found the problem in about 30 per cent of his adult patients. He feels it is wise to begin treatment immediately instead of just prophylactic care.

In his vividly illustrated presentation, Dr. Williamson said disc displacement can cause other related problems. It can cause cranial pain, affect the hearing, etc. When the dysfunction has been corrected, "these problems disappear," Dr. Williamson explained.

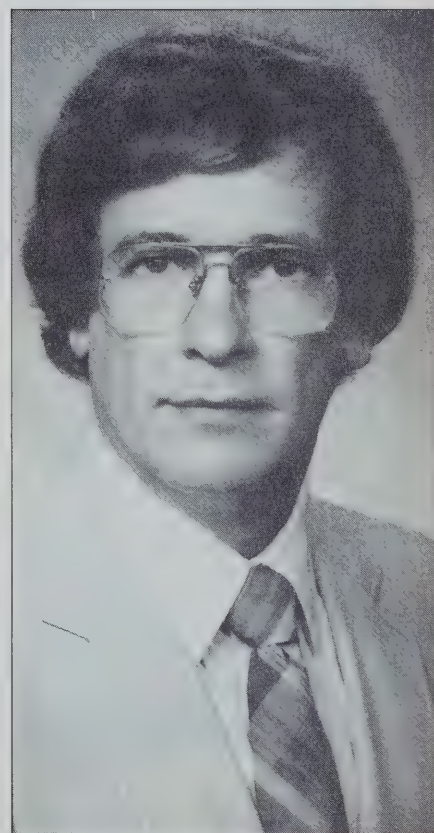
Dr. R.W. Hicks, a past president of the CDA, made a presentation to Dr. Williamson at the conclusion of his address.



Hélène Lalonde, a phlebotomist from the Ottawa Civic Hospital takes a blood sample from Dr. Don MacFarlane of Vancouver, Chairman of CDA's Third Party Dental Plans Committee.



Volunteers wait in line for their turn in the health screening process. Standing, left, is Dr. Patrick Blahut, chairman of the health screening committee, along with Brian Henderson, CDA's Director of Accreditation, also a committee member. Seated, foreground, is Lorraine Emmerson, Coordinator of Accreditation, who made appointments for the volunteers.



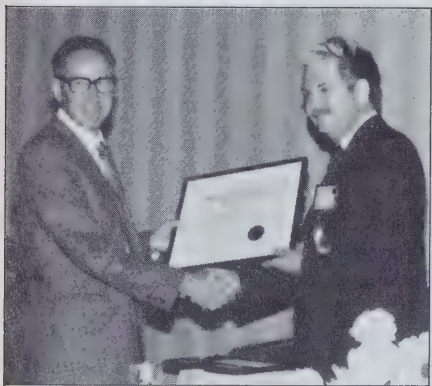
E.H. Williamson, DDS, MS, PC

CDA PRESENTS AWARDS AT CONVENTION LUNCHEON

The CDA annual awards luncheon, which took place on Monday, September 30, during the national convention, introduced those in attendance to a new face and honoured some deserving recipients.

The new face, who is no stranger to Journal readers, is Alan Average (JCDA, Vol. 50, No. 5, 1984). He was introduced to the audience by Dr. Arthur Wood, who was awarded CDA's Distinguished Service Award. The citation was presented to Dr. Wood for his innovative and pioneering work in the field of sports dentistry.

One of his pioneer projects was the design of face masks and helmets for children playing hockey. As a paedodontist and hockey coach, Dr. Wood became concerned some years ago about dental injuries among hockey players. With a great deal of time and effort, and some help from government grants, Dr. Wood designed a head mould of an 8-year-old, for use in making better hockey helmets and face masks. The mould was christened Alan Average.



Mr. Jack Knetchtel (left) accepts the Honorary Membership award from Dr. Ralph Crawford (right) on behalf of Dr. Lorne E. MacLachlan, who passed away before the award could be bestowed upon him. (Photo: C. Hackland)



Dr. Lawrence Yanover (left) receives the CDRF award from CDA's then President, Dr. Ralph Crawford, (right) (Photo: C. Hackland)

The CDA Honorary Membership was presented posthumously to Dr. Lorne E. MacLachlan. His award was accepted by Mr. Jack Knetchtel, an old friend of Dr. MacLachlan. In a moving tribute to Dr. MacLachlan, Mr. Knetchtel expressed his thanks to the Canadian Dental Association for bestowing the award.

The winner of the Canadian Dental Research Foundation Award was Dr. Lawrence Yanover, who won for his research paper entitled "A Clinical and Microbiological Examination of Gingival Disease in Parapubescent Females." Dr. Yanover received a cash award of \$1,000 and a plaque bearing his name.



Dr. Barry Sessle accepts the Institutional Award for the University of Toronto, where Dr. Yanover, recipient of the CDRF award, conducted his research. (Photo: C. Hackland)



Dr. Arthur Wood (Left) recipient of the 1985 Distinguished Service Award, introduces the audience to Alan Average, the mould which Dr. Ralph Crawford (right) is holding. (Photo: C. Hackland)



(L-R) Jack Knetchtel, Dr. Lawrence Yanover, Dr. Ralph Crawford, Dr. Barry Sessle, and Dr. Arthur Wood, pose after receiving the awards at the CDA luncheon. (Photo by John Evans)

The Institutional Award from the Canadian Dental Research Foundation went to the University of Toronto, Faculty of Dentistry, the institution where Dr. Yanover conducted his research.

Accepting the institutional award was Dr. Barry J. Sessle, who expressed his gratitude on behalf of the Faculty to the CDRF.

All of the awards were presented by CDA's immediate past-president (who was President at the time of the luncheon), Dr. Ralph Crawford.

DR ARNOLD FRANKS EMPHASIZES DENTAL NEEDS OF ELDERLY

There has been a dramatic increase in interest for continued improvement in dental care for the elderly because of the ever-increasing percentage of elderly in the populations of developed countries.

Dr. Arnold Franks, of Birmingham, England, a consultant in prosthetics and a Fellow of the Royal Society of Medicine (U.K.), told his audience at the CDA Convention that "the percentage of the population over 65 has doubled in Canada over the past 80 years. This is expected to continue. The same is true in the United States."

Meanwhile, he continued, the number of children and young adults is decreasing.

All of this, he said, indicates that "the dental profession, whether they like it or not, must have regular discussions about their contribution to these geriatric facts."

These developments will require special dental education. This, said Dr. Franks, involves wide-ranging skills in areas such as patient management. "There are differences in the nature of disorders and dysfunctions in the aged," he noted. "Diagnosis can be challenging."

The professional relationship may also be different. "There may be a third party — 'the carer' — between you and the patient."

Not just dentures

Dr. Franks said that the majority of dental practitioners feel that geriatric dentistry is simply a matter of dentures. He agreed that this is required, but much more is involved. "There is a significant need for a wide range of therapy."

He feels there is every reason to believe that the oral health of the elderly in the coming years will be much improved because of the higher standards of dentistry being provided today.

Rehabilitation

One of the major concerns in geriatric dentistry is that older people need to be "topped

up" so they can perform their usual functions and maintain an independent existence.

"The essential objectives of the dental team will be restoration of function." But that is only part of the process, he said. "The treatment should not be simply 'a crutch' for the amputee. There should be instruction and exercises. Dietary advice can be a very important aspect of dental care."

Preventive treatment, he said, should include elimination of the causes of disease, early detection of disease and the provision of oral rehabilitation. All this is required, he said, "if we are to improve the diet, speech, social problems and relieve debilitating effects."

The major problems of the elderly are medical, he said. In part this may be caused by poor nutritional intake.

"We as dentists can have some considerable influence" in the area of proper nutrition, Dr. Franks believes. The elderly, without natural teeth, lack fibre in their diet, and eat only soft foods. Also, he said, they often swallow large lumps of foods and gag. Choking, he said, is one of the major causes of accidental death of the elderly.

"Eating in old age should not become a hardship nor a problem. But to keep the elderly in good health, good dentition is necessary. An adequate diet is necessary to maintain healthy oral tissue." Also, Dr. Franks noted, the local effects of food "provides gingival stimulation and muscular exercise."

Rewarding dentistry

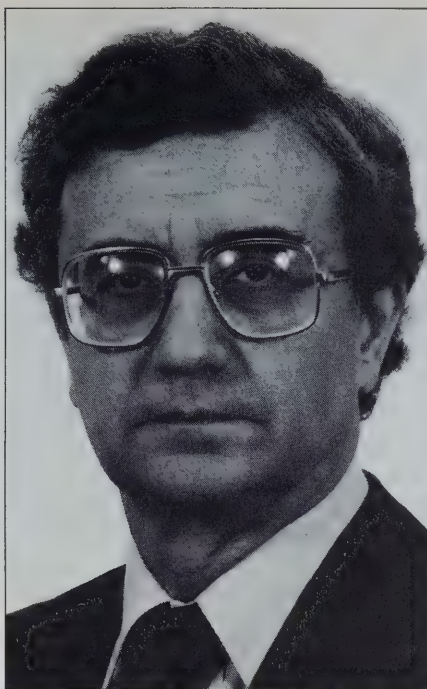
He said that "many old people are intensely rewarding to work with. Contact with them is often refreshing because of their outlook on life. Not all of them are embittered or irritable. If they are, it's because they have health problems."

In response to the question as to why older people wait so long before they seek dental or medical care, Dr. Franks explained that "as we get older and weaker, we seem to lose our initiative."

These people wish to maintain their pride and independence and often fear the consequences of a visit to their physician. They may have to become dependent on someone or have to be hospitalized. And worse, they fear that they may never return to their own home. For such people, Dr. Franks said, "there's a need to have someone, (a relative or friend) to monitor them, to determine if they are in need of medical or dental attention. We need 'informed reporters'."

On 'automatic pilot'

The average practitioner has had 'normal' patients for too long to be able to appreciate potential problems of geriatric dentistry.



Dr. Arnold Franks

"Their clinical assessment comes on 'automatic pilot,'" he said.

There's a major difference in both technique and interpretation of what you find out, with the elderly. The dental team must provide this care with sincerity and courtesy. "The patient is much more likely to forget instructions given by a business-like, clinical clinician, but much more likely will remember those given by a friendly, caring, practitioner," Dr. Franks advised. "Don't talk down to these patients. Adopt a friendly tone, because a treatment plan may not be easily accepted."

Multiple medication

The practitioner will encounter patients with arthritis, vascular and respiratory diseases, diabetes and some with mental problems. Some need multiple medication, he said. He also cautioned that there is a longer retention of drugs in the body of the elderly because of slowed metabolism rates. Precautions are advisable because of possible reactions with medication they are taking.

Posture is another aspect of treatment of the elderly. Some older people need the "sitting up" type of chair with a neck support. This accounts for 10 to 14 per cent of them, Dr. Franks said. "It's old-fashioned, maybe, but it's necessary." It can be physically uncomfortable for these patients to be treated in the prone position.

Another area of consideration is the possibility of postural hypertension. Some elderly persons, if they get up too suddenly, may collapse. Anxiety can greatly affect blood pressure, Dr. Franks warned.

"They are scared off by such bad experiences." They should be advised, while still seated, to breathe deeply, stretch a bit, before they get up.

The dentist should also know, and teach his staff, how to move, or lift, these patients. The dentist's or auxiliaries' backs can be hurt if the person is lifted incorrectly.

Dr. Franks' clinic

Dr. Franks spoke about his special care unit in Birmingham, to which patients are referred by the community.

He said that "house" visits are often necessary, and this establishes dentistry as "a caring profession."

In dental care for the elderly, he said, "there are many reasons for thinking in terms of mobile dentistry." When the dentist goes to the patient, "he can more easily relate his profession to the patient's needs. He gains access to personal problems and concerns of the patient, usually through a relative, often a close relative, and also learns about the patient's home and economic circumstances."

The dentist should regard dental health as "making a valuable contribution to the patient's quality of life. He must be prepared to make a physical presence at the home — 'Domiciliary Treatment.'"

He illustrated the "Domiciliary Kit", a small white plastic box taken on house calls, and containing all the necessary basic instruments. This is not intimidating for the elderly, he noted — no big, imposing array of instruments in stainless steel boxes.

If the patient needs further or more major treatment and must come to the clinic, the practitioner should first provide a careful explanation why this is necessary. Explain it and "let them decide." They are usually more than willing to agree, he said.

Problems with the aging dentition include crown loss, pulp disorders and plaque retention, all leading to possible tooth loss.

Tooth restoration in the elderly involves reshaping the tooth contour, cuspal protection and the use of cast metal. There can be special problems associated with vascular supply. "Young pulp and old pulp are very different. Old pulp are prone to problems such as rapid necrosis, irregular canals and calcific deposits," he said.

Also, Dr. Franks cautioned, "manipulation of infected mouth tissue can lead to bacteremia."

Plaque assumes a special significance in the elderly and contributes to an accelerated rate of pathology. He said it is best to avoid major restoration. The incidence of caries may have been low most of their adult lives, but "suddenly starts to go up again as they become old. They may also have a reduced saliva flow, and a loss of the self-cleaning

process." Root surface caries are very difficult to treat in old people, he said. "The dentist should avoid probing."

Oral hygiene should be emphasized. "Oral carcinoma occurs much less frequently in those employing good dental care," he said. The elderly may lose interest in good oral hygiene "because they have so many other problems." There is also an economic factor. The elderly are often economically disadvantaged and the cost of toothbrushes and toothpaste, etc., may be a deterrent.

For those with crippled or stiff hands, Dr. Franks noted that some devices for holding toothbrushes have been devised. Plastic tubes and even bicycle handlebar grips will serve a good purpose.

For the wheelchair-bound, a technician in England has invented a device to anchor the chairs in dental clinics. This permits the patient to remain in his chair while receiving dental treatment. The device also allows for the fitting of head rests.

MURRAY HUNT LECTURE WELL ATTENDED

The second annual Murray Hunt lecture was presented at the CDA Convention on September 30, 1985.

The lecture, which was very well attended, was presented as part of the annual meeting of the Canadian Society of Public Health Dentists. This year's lecturer was Dr. Harry Bohannon, whose topic was the "Results and Implications of the National Preventive Dentistry Demonstration Program." Dr. Bohannon, who has published in this Journal, is a research

professor at School of Dentistry, University of North Carolina.

Before beginning his talk, Dr. Bohannon praised Dr. Hunt for his accomplishments in the field of public health dentistry, and expressed his gratitude to the Society for inviting him to present the lecture.

Dr. Murray Hunt, who retired recently from the Department of Community Dentistry at the University of Toronto, is considered by many to be the father of public health dentistry. Dr. Hunt was also in attendance at the lecture.

CDA WIND-UP LUNCHEON A SUCCESS

The wind-up luncheon at the CDA Convention '85, which took place on October 2 in the Confederation Ballroom of the Westin Hotel in Ottawa, was a "howling" success.

With raconteur and sports personality Jack Donohue as keynote speaker, the audience was howling with laughter by the end of the festivities.

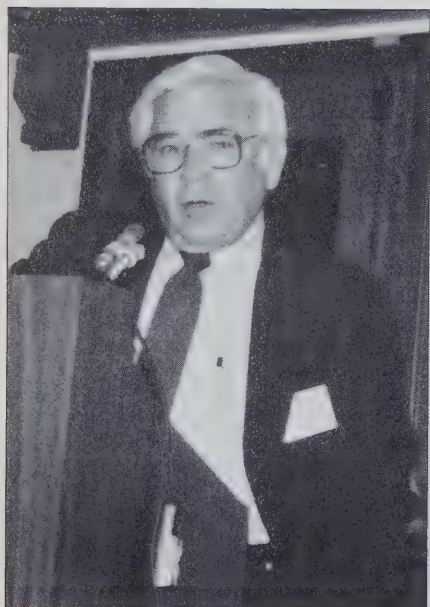
Prior to the introduction of Jack Donohue, an acknowledgement and note of thanks was given to CDA Convention committee members and CDA staff, by CDA President (now past-president) Dr. Ralph Crawford.



A likeness (photographic) of the photogenic general chairman of the CDA Convention, Dr. Donald O'Connor, is presented to Dr. O'Connor by Dr. Ralph Crawford, left, at the final CDA Convention luncheon. (Photo by Carolyn Hackland).



Side-splitting laughter was the order of the day at the final CDA Convention luncheon when raconteur and Canada's Olympic Basketball Team coach Jack Donohue gave forth with his comments. Dr. Bruce Robinson, social program co-chairman, who was the butt of some of Mr. Donohue's humorous barbs, is seen doubled with laughter, right. (John Evans Photo)



Dr. Harry Bohannon delivers the Murray Hunt Lecture at the CDA Convention.



Elaine Strokun, centre, a member of the Convention '85 spouses committee, prepares for the drawing for prints by Ottawa artist Murray Smith left, and an original oil by artist Bruce Heggveit, on the final day of the Convention. Jim McPherson, right, of the McPherson Gallery, Ottawa, also assisted on the occasion. Winners were: Mrs. Kathleen Pitkin, Agincourt, Ont. (oil painting winner); (print winners — Kathleen Allaby, Moncton, N.B.; Joanne Brunet, Gloucester, Ont.; Anne Hayward, Chatham, N.B.; Margot Joly, Ste-Foy, Qué.; Carol Prybysh, Fairview, Alta.; Elsie Russell, St. John's, Nfld., and Astrid Wade, of Fredericton, N.B. (John Evans Photo)

As a tribute to his hard work as general chairman of the Convention, Dr. Donald O'Connor was presented with a camera by Dr. Crawford, a gift from the Canadian Dental Association.

The luncheon was also the occasion to draw tickets to determine the winner of an original oil painting by Ottawa artist Bruce Heggveit and prints of an original work by another Ottawa artist, Murray Smith. The draw was a part of the spouses' program at the Convention.

The painting and prints were provided to the Convention group by McPherson Galleries in Ottawa. Artist Bruce Heggveit played a large part in the spouses' program, staging and conducting an artists' workshop on Monday and a talk on art as an investment on the final day of the Convention.

Following the presentation to the winners of the spouses' draw, Dr. Bruce Robinson, Chairman of the Convention's social program, introduced Jack Donohue. Besides being well-known as a sports figure and raconteur, Mr. Donohue is also the coach of Canada's Olympic basketball team. An American originally, Mr. Donohue now calls Kanata, Ontario, home. Mr. Donohue's description of his "flight" from Kanata (some eight miles from downtown Ottawa) provided an amusing introduction to his luncheon remarks and gained the audience's undivided attention.

Poking fun at everyone from CDA's social events chairman Dr. Robinson, to Dr. Ken Bentley, dean of McGill University's Faculty of Dentistry. Mr. Donohue made sure that those in attendance would remember the final event of CDA's 1985 convention for some time.

Indeed, some delegates are said to be still pondering Mr. Donohue's most vexing question, "How old is Ken Bentley??".

INHIBITIONS WERE SHED AT THE 'BYTOWN BASH'

Hair was lowered, inhibitions and decorum were shed — en masse — on Tuesday evening, October 1, when about 400 delegates, spouses, hygienists and assistants attended the highly informal social event of the Convention, in Hull, Quebec's, Palais des Congrès.

The event and decor were devised to recall the early color and drama of the Ottawa Valley's great lumbering days.

Stage facades of the "Bytown Saloon" and a log cabin with the message "Canadian Dental Association, the National Headquarters, 1870 — 6 dentists, no waiting" formed a backdrop for two distinguished music groups — the Apex Jazz Band and the national award-winning country and western group — The Family Brown.



The log-sawing competition proved a challenge at the Bytown Bash in Hull, Quebec's Palais du Congrès. Pictured is Dr. Kevin Roach, left, of Pembroke, Ont., and Dr. David Wilkie of Swan Lake, Manitoba. The winner of the singles competition was Dr. Brian Marsh of Sarnia, Ont., — in 7.3 seconds. The winners of the pairs competition were CDA's Dr. Ralph Crawford, Immediate Past President, and Dr. Brad Holmes, President, — in 15.4 seconds.



"So much food, so little time," is what new CDA President Dr. Brad Holmes, (A.K.A. "Rex, the Wonder Stomach") seems to be saying. He seems bent on reaching new heights in gustatory gymnastics.

Log-sawing competition

With dancing and savoring of good food running a close second and third place, in the balloon-festooned hall, the log-sawing competition provided the most fun of the evening.

Provincial dental association presidents, CDA executives, hygienists, assistants and spouses all had a chance to try their hand at the time-honored Ottawa Valley art of wielding a buck saw.

All participated with the zest and manual dexterity that would make a dental faculty professor proud.

CDA Social Committee Co-Chairman Dr. Bruce Robinson and MC Rollie Hammond ensured there was never a dull moment.

Several had heeded Dr. Robinson's advice about appropriate dress at this event, and



CDA's Executive Director, Jardine Neilson (right), appears to be calling for "time out" from the sumptuous feasting at the Bytown Bash, while Dr. Brad Holmes appears concerned he may have overlooked a course at the buffet tables.



A couple of plain ole country folks from rural Manitoba take a break at the Bytown Bash. Immediate Past President Dr. Ralph Crawford and his wife Olga, were gathering energy prior to another vigorous round of dancing to — what else? — country music!

adhered to the code of "studied carelessness."

Two of the most dishevelled and motley-looking characters were unofficially reported to have been the new President and immediate Past-President of the CDA.

Comfortably dressed Dr. John Hardie, Chairman of the Convention Scientific Program Committee, was noted at one point dancing dangerously close to the ceiling.

Greetings from Mayor

There were, however, some rare moments of decorum. The Mayor of the City of Hull, Michel Légère, swallowed his pride and extended civic greetings to the assembled riffraff.

Prize winners

Prize winners for the best time achieved in log-sawing, went to: Diane Pike, Convention Chairlady for the Dental Assistants' Association; Dr. Ralph Crawford, Immediate Past-President of the CDA; Bev Arduini, of Vancouver and Brian Marsh, of Sarnia, Ont. Draw prizes were won by: Michael Harach, Red Deer, Alta.; Maureen Symnes, of Edmonton; Fern Hubbard, of Nanaimo, B.C.; Richard Wag, of Fredericton, N.B.; Connie Conrod, of Sydney, N.S.; Karen Fynebruck of Calgary; Robert Nichol of Winnipeg; Anne Shantz of Kitchener, Ont., and Ole Mortensen.



Photo: C. Mercatle

The Family Brown, Canada's award-winning country and Western music group, gives forth with toe-tapping rhythms at the Bytown Bash.

CDHA FUN RUN STARTS CONVENTION OFF AND RUNNING, WALKING, BIKING. . . .

The CDA Annual Convention started off, quite literally, with a bang! — the starter pistol — when 54 runners competed in the Canadian Dental Hygienists' Association Fun Run.

Some delightfully strange characters straight out of Alice in Wonderland, also took part in the festivities. Drs. Tweedle Dee and Tweedle Dum (otherwise known as CDA President Dr. Brad Holmes and CDA past-President, Dr. Ralph Crawford) drew



Dr. Ralph Crawford (alias Dr. Tweedledum) (L) poses with CDA's Executive Assistant, Sandra Deziel (centre) and Dr. Tweedledee (alias Dr. Brad Holmes) (R), just prior to the fun run.



Drs. Dum and Dee look ready to lead the pack at the starting line.

a crowd of runners and curious onlookers wherever they appeared.

Riding a bicycle built for two, Drs. Dee and Dum did a creditable job of getting around the 6.2-kilometre course for one lap. The rest of the field was required to run or walk three laps around the Arboretum of Ottawa's Central Experimental Farm, making up the 6.2-kilometre distance.

Sponsored by Nike, the run originally had 80 participants registered. Out of the 80, 54 actually participated. The winner of the Fun Run for 1985 was Dr. Patrick Roy, who came in with a time of 38:11:40. Dr. Roy is an Ottawa dentist, who also recently competed in a local Ironman Triathlon event.

Second place winner was Dr. Hans Epp, with a time of 39:39:80, and third place was taken by Dr. Mike Bulmer with a time of 40:03:08.

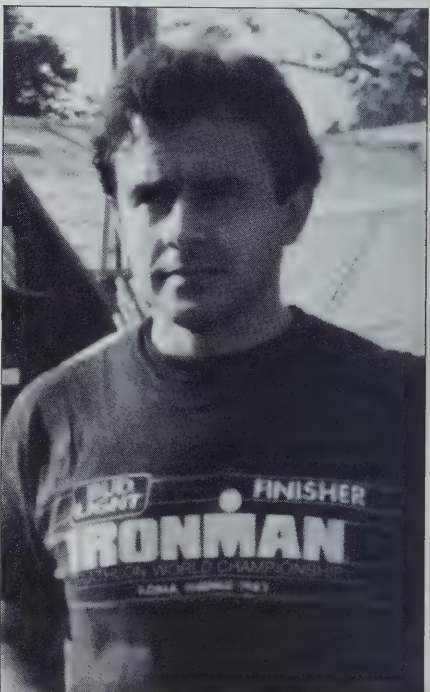
CDA's Executive Assistant, Sandra Deziel, who jogs as a hobby, came in 20th with a time of 48:21. One of the keynote speakers at the convention, Dr. Wesley Dunn, came in 27th.



They're off at the CDHA Fun Run.



Drs. Dum and Dee arrive back at the finish line well ahead of the rest.



Dr. Patrick Roy, an Ottawa dentist, came in first, with a time of 38:11:40.

HIGHLY SUCCESSFUL PRESS CONFERENCE IS HELD

During the CDA Convention in Ottawa, a highly successful press conference was staged in the Westin Hotel by CDA's Information Officer, Lise Marie George. All branches of the media were represented — print, radio and television.

Rapt attention was paid to comments by Dr. Jens J. Pindborg, one of the world's leading authorities on oral manifestations of AIDS. Dr. Pindborg was invited to address sessions at the CDA Convention.

Following statements by CDA President Dr. Brad Holmes, Executive Director A. Jardine Neilson, and the Convention's Scientific Program Chairman Dr. John Hardie, Dr. Pindborg explained how dental practitioners can play an important role in the early detection of AIDS and Pre-AIDS.

Dr. Pindborg also told the media people that there had not been "one single case of hygienists or dentists contracting AIDS" from saliva of a patient.

Dr. John Hardie gave the Canadian dental viewpoint on detection of AIDS and procedure in the event it is detected.

The press corps was not in its usual rush to get away to file stories at the end of the allotted time, but remained to individually ply Dr. Pindborg and Dr. Hardie with many more questions.

The session resulted in heavy coverage on television, radio and newspapers, and through the news wire services, to media across Canada.



Dr. John Hardie, CDA's Scientific Chairman for the Convention (L) fields a question on AIDS during the press conference. At Dr. Hardie's right is Dr. Jens Pindborg, an acknowledged expert in the field of AIDS, and a keynote lecturer at the Convention. Beside Dr. Pindborg is CDA President, Dr. Brad Holmes and beside Dr. Holmes, is Jardine Neilson, Executive Director of the CDA.

SCENES FROM PRESIDENT'S 'GALA' EVENT IN OTTAWA

The "President's Gala", a formal yet fun event at the 1985 CDA Convention, was held in the Confederation Ballroom of Ottawa's Westin Hotel.

Glittering fountains which decorated the pre-Gala reception area, were outshone by the formal attire of those in attendance.

Once inside the ballroom, the gathering was tempted with a gourmet dinner, plenty of liquid refreshment, and then, entertained by the Stephens and Kennedy dance band until the wee hours.

The accompanying photos show some of the delegates and spouses enjoying the fun.



Dancing in the subdued light continued until well into the night.



These three seem to be enjoying the fun. They are, (left to right): Win Mobley, CDA's DAT Coordinator; Pat Duminy, Secretary-Treasurer of the Ottawa Dental Society, and Lise Marie George, CDA's Information Officer.

HUBERT DROUIN HONOURED

Hubert Drouin, formerly the Executive Director of the Canadian Dental Association, was made an Honorary Lifetime Member of the Pierre Fauchard Academy of Dentistry, during the CDA Convention.

The photo shows Mr. Drouin, (centre) accepting the award. (L-R) Dr. Donald Dendinger, South Dakota, President of the Pierre Fauchard Academy, Dr. Clyde Covit,

Montréal, a past-President of CDA and member of the Academy, Mr. Drouin, Dr. Robert Shira, past-President of the Pierre Fauchard Academy and Dr. Lorne Taylor, Chairman of the Canadian Section of the Academy.

The Pierre Fauchard Academy is an international dental fraternity, named for the "Father of Dentistry" Pierre Fauchard, whose portrait provides the background in the photo.



LUNCHEON HELD FOR CDA PAST PRESIDENTS

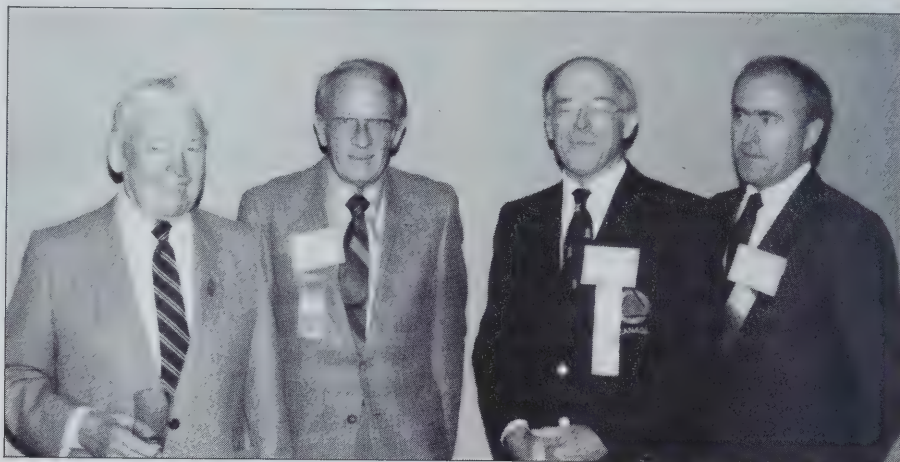
Several past presidents of the Canadian Dental Association attended a luncheon in their honor on October 1, 1985, during the CDA national convention.

Past presidents attending included Drs. James P. Coupland, Ottawa, Ont., (1967); William J. Spence, Toronto (1971); Michael J. Crompton, president in 1977, who is currently President of the Royal College of Dentists of Canada; Gil Utas, Grande Prairie, Alta. (1981), Donald Williams, Moncton, N.B. (1982); William R. Thompson, Trenton, Ont., (1983); David K. Peters, St. John's, Newfoundland, (1973); Robert Hicks, West Vancouver, B.C., (1984), in addition to the then President, Dr. Ralph P. Crawford from Winnipeg, and the then President-elect, Dr. Brad Holmes, of Kenora, Ontario.

In addition, several members of CDAs Executive Council and CDA's new Executive Director, A. Jardine Neilson, were also in attendance.



Left to right: Dr. Michael Crompton, Dr. Robert Hicks, B Gen James Wright, and CDA's Executive Director, A. Jardine Neilson, chat with each other at the past presidents' cocktail reception just prior to the luncheon.



Left to right are: Dr. James P. Coupland, Dr. William J. Spence, Dr. David Peters and CDA's new President-Elect, Dr. John Robertson, from PEI, pose before lunch.



Dr. Bill Thompson CDA president in 1983 shares a laugh with Dr. Ted Allison who represents Alberta on CDA's Executive Council.



Dr. Gil Utas, CDA President in 1981 chats with Dr. Jack Neidermeyer, CDA's executive Council member from Saskatchewan.

CDHA INSTALS NEW EXECUTIVE

This photo shows the new Executive officers for 1985-86, of the Canadian Dental Hygienists Association. (L-R) Ellen

Brownstone, First Vice-President, Winnipeg, Manitoba; Dianne Gallagher, President-elect, Regina Saskatchewan; Laura Mowat, past-President, Edmonton, Alberta, and new President, Audrey Newcombe, Tyne Valley, Prince Edward Island.



Photo: Carolyn Hackland

HOSPITAL DENTISTRY

LA MÉDECINE DENTAIRE DANS LES HÔPITAUX

1. Butler, R.J. *Quality assurance in hospital dental practice*. Australian Dental Journal, v. 29, no. 4, August 1984, pp. 257-259.

2. Cockerell, T.F., jr. *Hospital dentistry*. Dental Student, v. 63, no. 2, November 1984, pp. 18-21.

3. DeLaney, D.F., jr., VanOstenberg, P.R. and Salley, J.J., *A dental hygienist in the hospital*. Dental Hygiene, v. 57, no. 11, November 1983, pp. 31-34 and 36-37.

4. Galea, H. *An investigation of dental injuries treated in an acute care general hospital*. Journal of the American Dental Association, v. 109, no. 3, September 1984, pp. 434-438.

Abstract

Longitudinal studies are required to determine the long-term effects of treatment and nontreatment of injured teeth. Eleven percent of subjects came for emergency care 21 days or more after the accident with complications of the original injury. It would be reasonable to advise early attendance for evaluation of any person suffering from accidental trauma to mouth and jaws. Fewer than 10% of published research reports discuss trauma to the dentofacial structures. Traumatology should be part of the education of health personnel.

5. Giangreggo, E. *Dentistry in the mainstream of hospital care*. Special Care in Dentistry, v. 3, no. 2, March-April 1983, pp. 52-56.

6. Goldman, L.J., Seitz, S.J. and Peterson, D.E. *Dental considerations for the patient with acute leukemia*. General Dentistry, v. 31, no. 5, September-October 1983, pp. 398-400, 402 and 404.

7. Gornitsky, M. *The undergraduate elective in hospital dentistry — an innovative educational experience*. Canadian Dental Association Journal, v. 49, no. 3, March 1983, pp. 173-174.

8. Kentros, G.A. *Do dental general practice residency programs train competent generalists?* Special Care in Dentistry, v. 4, no. 3, May-June 1984, pp. 105-107.

9. Lennon, M.A. *Dental services in Britain*. Clinical Preventive Dentistry, v. 5, no. 2, March-April 1983, pp. 13-16.

10. Mandel, I.D. *Fostering research in the hospital setting*. Special Care in Dentistry, v. 3, no. 2, March-April 1983, pp. 83-84.

11. Perim, S.I. and Goldberg, A.F. *Mercury in hospital dentistry*. Special Care in Dentistry, v. 4, no. 2, March-April 1984, pp. 54-55.

12. Rippon, R. *A hospital-based emergency dental service*. Dental Update, v. 10, no. 8, September 1983, pp. 517-520.

13. *Role of the consultant restorative dentist in the general hospital service*. British Dental Journal, v. 154, no. 6, March 19, 1983, pp. 181-182.

14. Seto, B.G. and Lynch, S. *Safety of hospital dental treatment for the high-risk patient*. Special Care in Dentistry, v. 4, no. 6, November-December 1984, pp. 253-260.

15. Siegal, M.D. and Allukian, M. *A survey of hospital ambulatory dental programs in Massachusetts. Part 1: An overview*. Special Care in Dentistry, v. 3, no. 3, May-June 1983, pp. 124-128.

16. Siegal, M.D. and Allukian, M. *A survey of hospital ambulatory dental programs in Massachusetts. Part 2: Hospitals with dental clinics*. Special Care in Dentistry, v. 3, no. 4, July-August 1983, pp. 168-171.

17. Smith, B.W. *Dentistry in the hospital setting*. Special Care in Dentistry, v. 4, no. 2, March-April 1984, pp. 56-57.

18. Wasserman, B.S. and others. *Development of an inpatient oral health education program in an acute care facility*. Special Care in Dentistry, v. 3, no. 6, November-December 1983, pp. 263-265.

19. Young, E.W. and others. *Evaluation of treatment provided patients hospitalized with orofacial odontogenic infections: a retrospective study*. Oral Surgery, Oral Medicine, Oral Pathology, v. 59, no. 1 January 1985, pp. 28-33.

Abstract

The purpose of this study was to evaluate the treatment that patients receive when they are hospitalized for orofacial infections. Results indicated that dental consultations were not always obtained by medical personnel prior to the diagnosis and treatment of patients and that the antibiotic therapy

employed did not always involve the recognized drug of choice.

20. Zambito, R.F. and Lemmey, C. *Establishing and managing a hospital dental department (I)*. Quintessence International, v. 15, no. 5, May 1984, pp. 569-575.

21. Zambito, R.F. and Lemmey, C. *Establishing and managing a hospital dental department (II)*. Quintessence International, v. 15, no. 6, June 1984, pp. 677-681.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982, and is at the disposal of all members.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherche bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982, ce système est à la disposition de tous les membres.

NEW LIBRARY ACQUISITIONS

TITRE EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

1. Dawson, Peter E. *Evaluation, Diagnosis and Treatment of Occlusal Problems*. St. Louis, Mo.: C.V. Mosby Co., 1974, 407p. 1 copy.

2. Friedman, Mark H. and Weisberg, P.T. *Temporomandibular Joint Disorders: Diagnosis and Treatment*. Chicago: Quintessence Publishing Co., Inc. 1985. 170p. 1 copy.

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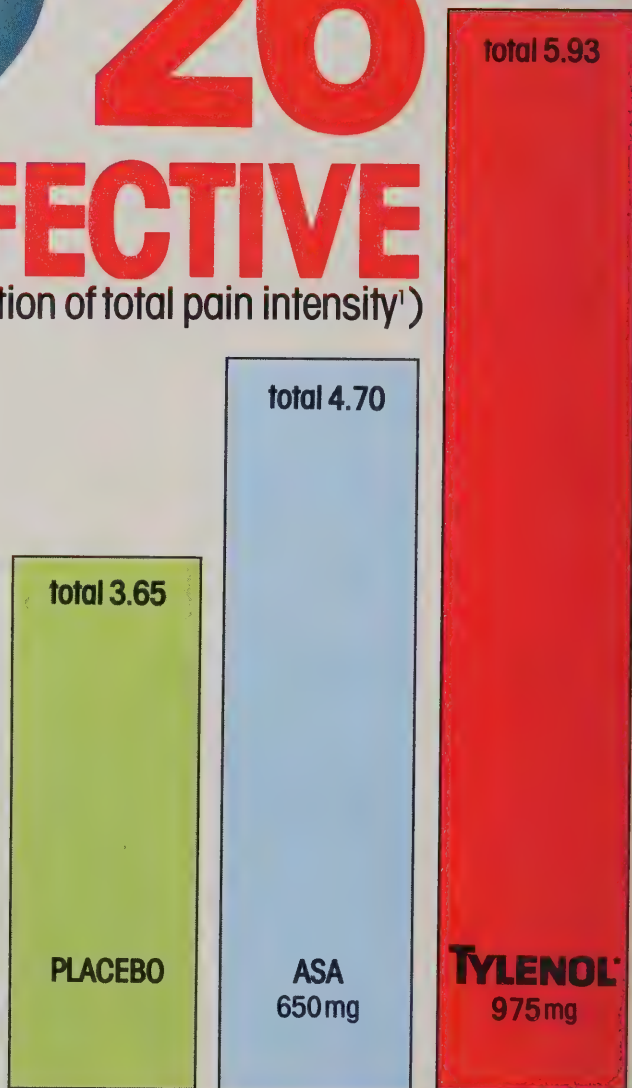
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Book Reviews

“RESTORATION OF THE ENDODONTICALLY TREATED TOOTH”

H.T. Shillingburg and J.C. Kessler

*Quintessence Books,
Chicago, Ill. 382 pps.*

This timely text with many colored illustrations provides a good overview of the various methods of restoring an endodontically treated tooth. The colored graphics and tables provide a quick reference for procedural information based upon supportive studies and research. The illustrations depict the use and application of various instruments and supplies and clearly portray the various clinical procedures.

The text on the book jacket indicates that, “this book will guide the novice” and “should enable the experienced practitioner to evaluate” and “feel comfortable in trying techniques or systems not previously used”. We would agree with these statements given the suggestions that this text is intended to be introductory and practical and not highly detailed or comprehensive.

The illustrations, although of good quality, appear to have problems. Some drawings infer very large facio-lingual preparations at the expense of the remaining tooth structure. This could result in overpreparation, perforation or root fracture. While we acknowledge that there are tables and proper technique instructions, the diagrammatic representations could be misleading.

We recognize that there are limitations to diagrammatic representations and that one may wish to depict different cases but we also feel that the art work could be improved and, where necessary, clarifying statements inserted.

One of the most distracting features is the repetitious use of the same illustration with different captions for different techniques. The same drawing or slide is presented as often as six times and this occurs throughout the book. One wonders why the authors chose not to organize the presentation of their techniques in a more compact format. Since there are common steps, a particular procedure could have been presented once and described as applicable to the various techniques.

Given the above statements concerning the illustrations, these reviewers wish to emphasize that we do recommend this text and do compliment the authors on the effective use of many colored diagrams and photographs to demonstrate the various procedures. We are sure that any of the readers who purchase the text will agree with us and find the text of considerable assistance in practice.

There should be more information on root canal anatomy and morphology to indicate the general shapes and sizes of the various canals as well as the shapes of roots in cross and longitudinal sections. Such information could alert the operator to potential operating hazards and errors.

Although the text does mention one acceptable technique using a hot spreader

in the initial removal of gutta percha, it was felt that this aspect of treatment, and the consequences, deserved more attention and emphasis. The use of fiber-optics, or similar aids, in the canal and crown preparation stages might be worth mentioning. We are not suggesting the addition of chapters on endodontics but feel that there should be appropriate references, guidelines or example cases which could be presented simply and briefly and would be complementary to the existing text. Other additions might include references and guidelines dealing with other aspects of case selection and the management of restoration complications and failures.

Although the authors' first chapter is titled “Principles of Restoration of Endodontically Treated Teeth” there is little emphasis or consideration of the forces of mastication. (e.g. Their magnitude, their direction of action or their mechanical advantages.) One reference to this important factor in restoration design is provided in the section briefly dealing with the dowel taper.

SUMMARY

We would certainly recommend this text to students and practitioners as a great deal of very practical information can be obtained quickly without extensive reading or searching.

*This book was reviewed by
Dr. C. Osadetz, and
Dr. D. Collinson
Faculty of Dentistry
University of Alberta*

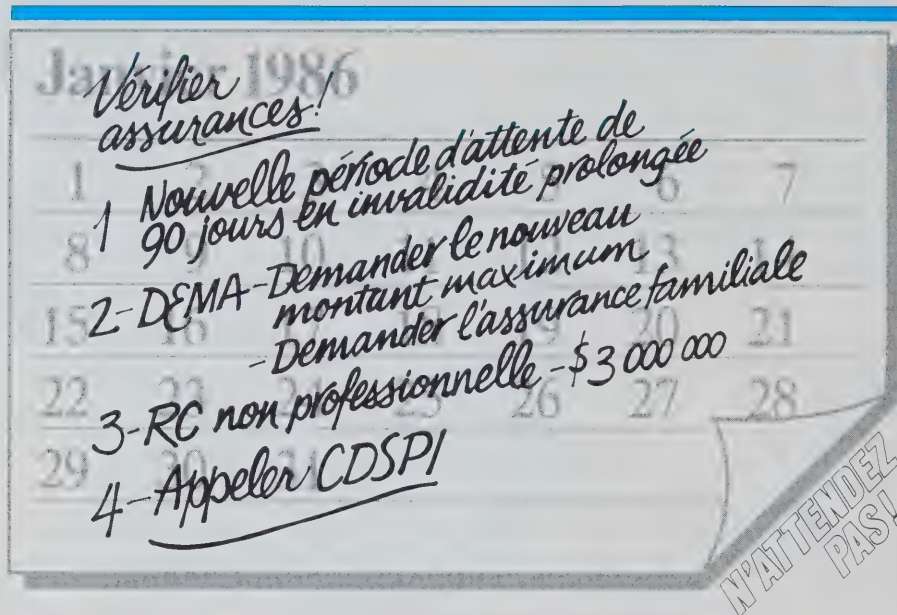
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THE CAPITATION CONTROVERSY IN CANADA

Heather Lang-Runtz, BA

On ethical terms, the closed panel approach to funding the delivery of dental care — including capitation, assignment and direct reimbursement — constitutes a bitter pill to swallow for organized dentistry. These types of coverage tend to decrease patient utilization, to place the dentist in the position of assuming all the financial risk, to encourage inadequate treatment, and to remove that sacred tenet of a democratic society — freedom of choice.

Should organized dentistry be promoting dental care plans that may discourage many people from seeking treatment, and from seeking it with the dentist of their own choice?

This is a serious ethical question. And it is one that Canada's dental associations, both provincially and nationally, are being forced to answer right now.

Both capitation and assignment schemes have been around for some time: capitation for about five years in the Toronto area and assignment for countless years in some provinces, particularly New Brunswick and British Columbia. In fact, in the Province of Saskatchewan, the provincial dental organization, the College of Dental Surgeons of Saskatchewan, administers a "modified" capitation plan on behalf of the government,



for adolescents in the high schools. The plan, initiated in 1981, is modified in that the association sets the fee schedule and reviews all the services to be administered by the practitioner. Still, Dr. George Peacock, secretary-treasurer/registrar,

This is the second and final part of a special feature on capitation, written by Heather Lang-Runtz, an Ottawa editor and writer and a former Associate Editor of this Journal.

admits that "there was some hesitation on the part of our membership when the plan first began."

Organized labour proposal

Of utmost concern right now to the dental profession is a pseudo-capitation proposal being considered by the Canadian Federation of Labour (CFL), for its membership of about 200,000, scattered across the country. A federation of unions, mostly in the building trades, the CFL envisages a series of dental clinics on a basis not dissimilar on the surface, to a closed panel approach.

The CFL's product and market development plan for its dental health centre program provides for the establishment of a national dental health care organization, which will operate under the federation's auspices. To be called the National Health Centre Inc., the program's objectives include opening health care centres across the country to serve the needs of the union members and provide the highest possible quality dental care at the lowest possible cost.

Although the federation denies that its proposal smacks of the capitation approach, the Canadian Dental Association argues to the contrary. According to the chairman of the CDA committee on third party dental

plans, the plan is poorly conceived and is "grasping" at ways to reduce dental costs by any means possible. Oddly enough, although the CFL is obviously concerned about quality dental care — it stresses that its prime concern is to ensure that its members obtain excellent quality dental treatment at a reasonable cost — it has ignored the reams of reports in North American dental literature that demonstrate how capitation promotes inadequate dental services.

Charged with the task of advising the dental profession and the Association on the implications of alternate delivery systems, the CDA committee is currently involved in preliminary discussions with representatives of the CFL. Chairman Dr. Don MacFarlane says his five-man committee will continue to meet until the federation decides either to proceed with its plans as outlined, or to alter them according to the CDA's advice. "We are trying to show the CFL that there are other alternatives to their proposal, that they can reduce prepaid dental costs *under* the existing fee-for-service system."

If the CFL follows through with its intentions, the CDA wants to be there — to monitor the scheme, province by province.

In addition to sitting in on discussions with the CFL, the committee on third party dental plans is reflecting the CDA's 'cautious' approach to third party coverage by emphasizing self-regulation and freedom of choice in all its activities. At the October Board of Governors meeting, the committee successfully presented a set of resolutions that dealt specifically with the role of third party dental schemes. The Board endorsed the following resolutions:

- that the CDA takes the position that third party carriers, including dental consultants to carriers, should not exceed their legitimate role in the processing of dental benefit claims and specifically should not reject liability for complex cases without seeking the advice of individuals with specialized expertise in the disciplines involved;
- that the CDA urge third party carriers to identify their dental consultant by name in any correspondence to attending dentists; and
- that the CDA notify third party carriers of this position.

CDA Guidelines

These approved resolutions will now become part of the new CDA guidelines on third party dental plans presently being developed by MacFarlane's committee. Also in the works is the establishment of a special sub-committee, whose focus will be entirely on third party alternatives "now rearing their heads" in North America, says Dr. MacFarlane. The sub-committee's role will be to gather information on these vari-

ations, to disseminate this information, and to act as a resource to employers and agencies that are considering closed panel approaches.

Although the CDA "can't dictate to the dentist," says Dr. MacFarlane, "it can serve to educate. In addition to publishing articles on closed panel systems, we want to produce pamphlets on each type of scheme the dentist may encounter." The U.S.-based Dialogue in Dentistry group is an example of a fully-developed resource of this type.

News of the CFL's capitation proposal has reached the ears of the provincial associations, and reaction has been swift. Those who have not already done so are now setting up specific committees to study closed panel dentistry and to report all findings back to the respective executive. A few associations have even gone so far as to seek legal opinion.

This past summer a sub-committee, chaired by Dr. Larry Rossof, under the economics committee, was established by the College of Dental Surgeons of British Columbia. Because roughly 80 per cent of the practitioners are probably involved in delivering dental care through assignment (where on an individual patient basis the dentist accepts payment directly from a third carrier), the association felt it was necessary to set up a committee that would monitor the local scene and develop strategies. The sub-committee is expected to put forward a set of resolutions for board consideration in the near future.

The B.C. association would rather the dentist deal directly with the patient. Although at one time the association recommended reversing the trend towards assignment, according to president Dr. Serge Vanry, it "met with blank stares."

So, how does one reverse a trend like this? he asked. Good question.

Action in Alberta

In Alberta, the association there has been actively lobbying against the closed panel concept: memos have been circulated to the membership; articles have been published in the ADA's news bulletin; even a position paper was sent to the CFL.

The Manitoba Dental Association has set up a third party dental committee that keeps abreast of new developments in the field on an informal basis. Surprisingly, although the association vehemently opposes capitation schemes because they "place all the risk on the dentist and they encourage under-treatment," the MDA does not perceive assignment schemes to be a threat to the profession. According to president Dr. Les Allen, a "considerable percentage" of Manitoba's dentists accept patients on an assignment basis. Perhaps it is for this

reason that the MDA rejected the CDA's suggestion that assignment schemes be opposed.

Nowhere has the fight against closed panel dentistry been as vocal as in the province of Ontario. For about five years — ever since capitation schemes first started to appear on the Toronto horizon — the Ontario Dental Association has been working with the Royal College of Dental Surgeons of Ontario, the licensing and disciplining body for the province's dentists — about 5,000 in number — in an attempt to outlaw prepaid dental care. (Unlike some provincial associations, the ODA does not accept assignment schemes.) At the core of ODA's objections to prepaid dentistry is the lack of freedom of choice for the patient.

The ODA and the RCDS have been involved in ongoing discussions with the Ontario Ministries of Health and of Consumer and Commercial Relations. Two proposals have been tabled: a) that a compensation fund be established as a means of providing coverage for people who have bought insurance from companies that eventually go bankrupt (this fund should include capitation patients); b) that a dentist who participates in a scheme that restricts a patient's freedom of choice of practitioner should be charged with professional misconduct under the Health Disciplines Act. Acceptance of this second proposal would ensure, says ODA President Dr. R.D. Wells, that patients are offered fee-for-service indemnity plans along with any capitation proposal. Although the first proposal is on the "back burner" right now, the ODA is actively pursuing the second proposal, since freedom of choice is a cornerstone of Canadian government policy.

Vehement opposition in Québec

In Québec, the Association des chirurgiens dentistes du Québec has been a vehement opponent of capitation schemes in particular, and of closed panel systems in general.

The CFL's proposal precipitated the decision by the New Brunswick Dental Society to begin taking steps to establish an official committee on third party dental coverage.

In Nova Scotia, alternative delivery schemes "has been a topic at every executive meeting during the past two years," says Dr. Tom Larder, president of that province's dental association. The six executive members (representing the province's six districts) of the Nova Scotia Dental Association, are required to report regularly on the subject. Lately, the association has decided to also set up a watchdog system.

Concern for the spread of and interest in, closed panel dentistry, is evident in Newfoundland, where the provincial association

has set the wheels in motion by holding an information meeting with its ethics committee on October 28, last. Dr. P.C.E. O'Brien, President of the Newfoundland Dental Association, says he wants the NDA to be prepared and, hopefully, put together some resolutions for its membership.

Capitation schemes are not illegal — yet — nor have they been declared unethical by the dental profession. But this doesn't mean that they (or other forms of closed panel approaches) are right. As Dr. C.S. LeBlanc, President of the New Brunswick Dental Society aptly says: "Capitation is a step towards controlling the dental profession — controlling the fees, the treatment, the choice of practitioner. We see this in a very bad light."

CDA's Council on Health Care obviously felt the same way when it passed the following resolution, which has been conveyed to the CDA Committee on Ethics:

"That the Chairman of the Council write to the CDA committee on ethics and request that the latter review provincial dental positions regarding the ethical implications of Capitation and other third party coverage with the potential to contribute to inequitable payment for equivalent services (i.e. waiving the co-payment factor) to restrict freedom of choice for the patient or the dentist, to dictate the fee or treatment, or otherwise restrict professional freedom."

Under capitation schemes, both the dentist and the patient suffer. The patient is cheated out of quality care; the dentist out of professional integrity.

Professionalism has been defined in various ways, but most definitions stress that the concepts of self-government and self-regulation, are essential elements. Intervention between the patient and the dentist by any third party, creates the potential for impact on patient care and on the professional autonomy of the dentist. For example, a dentist may be pressured to under-treat a patient in order to make more money for the third party carrier.

Moreover, closed panel approaches undermine one of the basic and sacred privileges for those living in a democratic society — freedom of choice. In the health care field, a patient has the *right* to choose his or her practitioner, and the practitioner also has the *right* to choose his or her patient — apart from distinction in terms of race, color or creed. Although CDA's Code of Ethics is not as explicit in this regard as the code developed by the Canadian Medical Association, there is still an assumption that freedom of choice for both the patient and the practitioner, is a critical consideration.

Hopefully, organized dentistry will recall the words of Francis Bacon: "I hold every man a debtor to his profession."

APPOINTMENT



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TAX PLANNING FOR THE SALARIED DENTIST

David I. Matheson, QC
Toronto, Ontario

Statutory deferred income plans are among the most attractive tax planning devices available to employed professionals because they permit an employee to defer receipt of current income, taxable at high rates until a later date, after retirement for example, when income and consequently tax rates will be lower. These plans, which include registered retirement savings plans and registered pension plans are attractive to both employers and employees for several reasons: the employer can deduct amounts contributed by it on a current basis; the employer's contributions are not taxable benefits to the employee in the year in which they are made; the employee's contributions are currently deductible; and income can accumulate in the plan on a tax deferred basis until it is actually paid to the employee.

At present, the limits on both employer and employee contributions to statutory deferred income plans are fairly strict and vary among the types of plans. However, in the May 26, 1985 Budget, the Federal government expressed its interest in providing fairer access to tax assistance for retirement saving and greater flexibility in the timing of tax savings and announced several changes to the rules relating to statutory deferred income plans some of which are outlined briefly below.

Registered Retirement Savings Plans

Under the existing rules the maximum annual contribution to registered retirement savings plans for individuals for whom these plans are the only tax assisted means of saving for retirement is the lesser of 20 per cent of earned income or \$5,500. The limit on tax deductible contributions will be increased to the lesser of 18 per cent* of earned income or \$7,500 for 1986. Thereafter, the maximum will increase by

\$2,000 annually until 1990 when it will be \$15,500.

The new rules will also permit unused registered retirement savings plan contribution entitlements for 1986 and subsequent years to be carried forward for seven years. Deductions relating to catch-up contributions will be allowed in addition to deductions for regular registered retirement savings plan contributions for the current year. The seven year carry forward will permit those individuals who were not in a financial position to make maximum contributions in the early years of their careers to make greater tax deductible contributions to registered retirement savings plans in later years when incomes are higher, thereby accumulating considerably more funds for retirement, all of which will be tax sheltered.

Registered Pension Plans

A money purchase registered pension plan is a pension plan which provides that contributions and accumulated income will be used to produce an amount of pension income which cannot be determined until an annuity is purchased. For members of this type of plan the maximum tax deductible contribution (employer and employee combined) to both registered pension plans and registered retirement savings plans will be increased from 20 per cent of earned income or \$7,000 to 18 per cent* of earned income or \$7,500 for 1986. Thereafter, the maximum will increase annually until 1990 when it will be \$15,500.

*The apparent reduction of the limit on tax deduction contributions to deferred income plans from 20 per cent to 18 per cent of earned income reflects a modification in the definition of earned income to exclude income from real property and pension income, the revised definition will include only the earnings that the retirement income is intended to replace. Thus the amount of earned income to which the 18 per cent limit will apply is a potentially smaller amount than the amount to which the 20 per cent limit applies under existing rules.

Under the existing rules there is no statutory limit on employer contributions to defined benefit registered retirement plans which provide for a particular level of pension, generally related to earnings over time and to years of pensionable service, for plan members upon retirement. However these contributions are, in fact, limited by the maximum allowable pension of \$60,025. Tax deductible employee contributions to these plans are limited to \$3,500 which when combined with maximum contribution to registered retirement savings plans result in a maximum tax deductible contribution of \$7,000. Under the Budget proposals the maximum tax deductible employee contribution to defined benefit pension plans will be increased to \$7,500 in 1986 and annually thereafter to 1990 when it will be \$15,500. Employee contributions to registered retirement savings plans not exceeding 18 per cent of earned income will be deductible up to a maximum of \$2,000.

The Budget provides for the annual indexing of maximum contribution limits to the average wage after 1990.

Employee Benefit Plans

In recent years employers have used employee benefit plans (EBPs) to supplement retirement benefits available to their employees under registered pension plans and registered retirement savings plans, which, because of low contribution limits did not provide a well paid employee with sufficient retirement income to maintain his lifestyle. The Budget proposals will allow employees greater scope to defer income using only the statutory deferred income plans and, therefore, may affect the popularity of EBPs.

An EBP is any funded deferred compensation arrangement other than a statutory deferred income plan. Under an EBP the employer makes payments to a custodian

for the benefit of an employee or former employee. The only limit on employer contributions is that they must be "reasonable in the circumstances". No tax deduction is available to the employer for its contributions until the custodian disburses the funds to the employee.

The employee is not taxed on employer contributions until they are ultimately disbursed to him by the custodian. At that time the amounts disbursed are taxed as income from employment and are eligible for the basic employment deduction (\$500) but not for the \$1000 pension deduction, even if they do not become payable until the employee retires. These payments are not eligible for taxfree rollovers to statutory retirement savings plans.

The lack of a current deduction for employer contributions to EBP's makes them unattractive to most employers. However, if, as is the case with many dentists who are employed by hospitals or universities, the employer is tax exempt, the lack of a current deduction is not of concern.

Income earned by an EBP in a year and not disbursed to a beneficiary prior to December 31 is subject to tax at a rate of 50 per cent. Income retained by the trust

will be taxed again in the hands of the employee when it is subsequently paid out to him. Therefore, to avoid double taxation, plan income must be distributed to beneficiaries in the year in which it is earned.

If the income beneficiary is the employee, plan income allocated to him will be taxable as income from employment. This, to a certain extent, defeats the income deferral objective of the plan. A person related to the employee but whose marginal tax rate is lower than the employee's may be designated as the income beneficiary of the plan and amounts received by him will be taxable as income from employment. However, Revenue Canada has taken the position that plan income paid to the spouse of the employee or to anyone under 18 will be attributed to the employee.

Some EBP's sponsored by a tax exempt employer designate the tax exempt employer as the income beneficiary until the employee becomes entitled to receive payments from the plan. The employer pays no tax on the annual income and recontributes the amounts received by it to the EBP. Thus, in effect, income accumulates in the plan tax free.

Revenue Canada has expressed its disap-

proval of such arrangements, and in the May 23, 1985 Budget, the Federal Government expressed its concern "about the possibility of certain groups being able to obtain additional and potentially unlimited tax deferral advantages through an employee benefit plan" and indicated the Income Tax Act would probably be amended in the near future to eliminate some of these advantages.

Statutory deferred income plans continue to be the cornerstone of tax planning for employed professionals. With the proposed increase in contribution limits, these plans will soon offer highly paid employees much greater scope to defer income and to provide for an adequate level of retirement income. One of the effects of the Budget proposals may be to decrease interest in employee benefit plans as a means to supplement statutory deferred income plans. However, for the time being, the employee benefit plan continues to offer some interesting tax planning possibilities particularly if the employer is tax exempt.

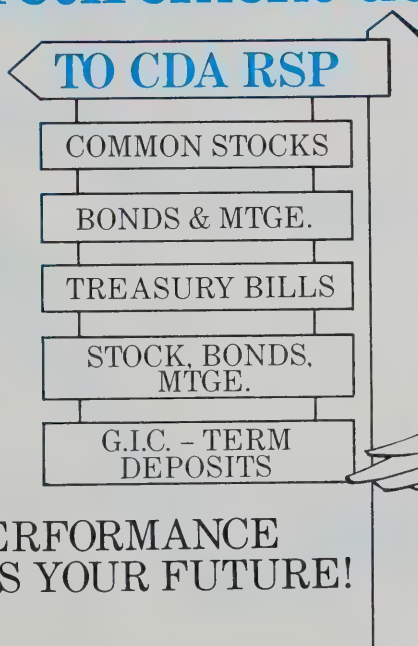
Mr. Matheson is a partner in the Toronto law firm McMillan, Binch. He has been counsel for the Canadian Dental Association for several years.

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FACIAL PAIN AND ITS CONTROL: NEW INSIGHTS INTO OLD PROBLEMS

B.J. Sessle, BDS, BSc, MDS, PhD. *

Royal College Symposium

The Journal of the Canadian Dental Association has for some time carried on the tradition of publishing synopses (or lengthier versions) of presentations at the biennial symposia of the Royal College of Dentists of Canada, which are normally held in conjunction with the annual convention of the Canadian Dental Association.

The Symposium in September of 1985 was held during the CDA Convention in Ottawa and the general theme was "Facial Pain." The chairman of the morning session was Dr. Kenneth C. Bentley, Dean of the Faculty of Dentistry, McGill University Montréal. The afternoon session chairman was Dr. Ralph I. Brooke, Dean of the Faculty of Dentistry, University of Western Ontario, London, Ont.

The four presenters were:

- Dr. Ron Melzack, Professor of Psychology, McGill University, Montréal
- Dr. Barrie J. Sessle, Professor of Physiology, University of Toronto
- Dr. Ron Remick, psychiatrist, University of British Columbia, Vancouver, B.C.
- Dr. John Loeser, neurological surgeon, University of Washington, Seattle.

Symposium du CRDC

Depuis quelques années, le Journal de l'Association dentaire canadienne a pris l'habitude de publier des résumés ou des abrégés des conférences présentées dans le cadre du Symposium du Collège royal des dentistes du Canada qui se tient ordinairement conjointement avec le Congrès de l'ADC.

Tenu en septembre lors du Congrès 1985 à Ottawa, le dernier symposium du CRDC avait pour thème les douleurs faciales. Le président des conférences du matin fut le Dr Kenneth C. Bentley, doyen de la Faculté de médecine dentaire de l'Université McGill, à Montréal. Celui de l'après-midi fut le Dr Ralph I. Brooke, doyen de la Faculté de médecine dentaire de l'Université Western Ontario, à London (Ontario).

Les quatre conférenciers étaient:

- le Dr Ron Melzack, professeur de psychologie à l'Université McGill (Montréal)
- le Dr Barrie J. Sessle, professeur de physiologie à l'Université de Toronto
- le Dr Ron Remick, psychiatre attaché à l'Université de la Colombie-Britannique (Vancouver)
- le Dr John Loeser, chirurgien neurologue attaché à l'Université de Washington (Seattle).

can be modified by cognitive, emotional and motivational influences related to the patient's past experience and feelings about pain, stress and anxiety, other ongoing sensory experiences, etc. Dr. Melzack has provided in his excellent review of these factors a number of "vivid" examples. It is thus clear that when a patient comes to the dentist and complains of pain, the dentist is not dealing with a simple sensory phenomenon merely involving peripheral neural events elicited by an identifiable physical lesion or stimulus, but with the interaction of these events with the patient's central nervous system. This includes the influences of memory, past experience, anxiety, ethnic background, motivation, and personality.

(2) Central Pain-Transmission Neurones

With respect to the neural elements providing sensory-discriminative information about the intensity, location and duration of a noxious stimulus in the mouth or face, it has been demonstrated that the noxious stimulus excites certain types of receptors in oral-facial tissues¹, and that the detailed signals from the receptors are carried by specific afferent nerve fibres into the brainstem. Neurones have been found in parts of the trigeminal brainstem nuclear complex (e.g. especially in subnucleus caudalis) that receive and transmit the detailed information about the sensory-discriminative features of the stimulus^{2,3} (Fig. 1).

These nociceptive neurones are of two main types, as Fig. 1 illustrates. They relay the nociceptive information which they receive to local brainstem centres involved, for example, in reflex muscle responses to a noxious oral-facial stimulus¹. They may also pass the information to higher brain centres (Fig. 2), for example, to areas in the thalamus and cerebral cortex involved in perception as well as in emotional and motivational reactions to the noxious

To deal most effectively with the diagnosis and control of pain, the clinician should be familiar with changes that have taken place in the conceptualization of pain, and with recent advances in pain research. In the following summary of my presentation, I will briefly outline four areas in which new insights into orofacial pain have been forthcoming: (1) the changes in our conceptualization of pain, (2) identification of central neural elements transmitting sensory information about pain, (3) pathways and mechan-

isms modulating this transmission, and (4) effects of deafferentation on sensory transmission.

(1) The Experience of Pain

Pain can no longer be thought of simply as a sensation reflecting the so-called sensory-discriminative aspect of the noxious stimulus evoking pain, i.e. its intensity, location and duration. Instead, pain is now conceptualized as a multifactorial or multidimensional experience that

stimulus¹. The properties of some of these pain-transmission neurones can explain our ability to localize a noxious stimulus and sense its intensity and duration, since they respond in a graded fashion to noxious stimuli of different intensities applied to localized regions of the face or mouth (e.g. Fig. 1). However, a particular feature which we have noted^{3,4,5} for many of the trigeminal pain-transmission neurones is their receipt of sensory inputs from nerves supplying quite widespread parts of the face, mouth, and even the neck (Table I). The excitation of single neurones by several convergent inputs (e.g. from teeth, skin and TMJ) would explain how spread and referral of pain can arise and is indeed consistent with the so-called convergence theory of referred pain⁶.

(3) Pathways and Mechanisms of Pain Modulation

The activity of these trigeminal pain-transmission neurones in the brainstem can, nonetheless, be modulated by a number of other sensory inputs or higher centre influences. For example, our own research⁷ has shown that the responses of these neurones to a noxious stimulus to the face or dental pulp can be suppressed by stimulation of other peripheral tissues, by signals derived from the somatosensory cerebral cortex, or by influences from the periaqueductal gray-raphe system of the midbrain and brainstem (Fig. 2). This latter intrinsic brain system is involved in emotional and motivational behaviours and uses particular neurochemicals in its actions. The suppressive action it exerts on pain-transmission neurones partly operates by the release, for example, of the endogenous neuropeptide enkephalin which is involved in the therapeutic actions of a number of procedures inducing analgesia, e.g. those involving the opiate-related drugs and acupuncture^{8,9}.

(4) Effect of Deafferentation — a Factor in Chronic Pain?

The activity of the trigeminal brainstem neurones can also be altered by therapeutic procedures or trauma associated with deafferentation, a term which refers to the partial or total loss of a sensory nerve supply to a particular body region. It has been found for example that dental pulp deafferentation can lead not only to degenerative-like changes in peripheral dental nerves, but also to marked morphological changes in the central neurones in the trigeminal brainstem nuclear complex¹⁰. We have found that such a routine endodontic procedure is also associated with changes in the physiological properties of these neurones^{11,12}; these alterations are reflected in a disruption

TABLE I

Convergence of Afferent Inputs to Nociceptive Caudalis Neurones

Skin/Mucosa	100% (n=56)
Tooth Pulp	60%
Muscle — Jaw	23%
— Tongue	53%
Cervical (C ₃)	50%
Laryngeal Mucosa (Visceral)	60%
TMJ	50%

tion of the functional organization of the neurones and a marked increase in hyperactivity and abnormal responses to oral-facial stimuli (Fig. 3). Since a number of clinical problems manifesting chronic pain elsewhere in the body are linked to deafferentation, e.g. neuropathies, causalgias, neuralgias^{13,14,15}, it is possible that such morphological and functional changes associated with deafferentation procedures in the face and mouth may be involved in the aetiology of several chronic oral-facial pain conditions. For further discussion of this interesting possibility, the reader is referred to a recent review on the topic¹².

In summary, pain is now looked upon as a multidimensional experience. Recent research has identified critical neural elements concerned with the sensory-discriminative aspect of oral-facial pain, as well as some of the pathways and mechanisms involved in the modulatory influences on pain transmission. In addition, these findings have provided explanations of how pain can be transmitted and controlled, and have also provided insights into how particular pain problems (e.g. referred pain; chronic pains such as atypical facial neuralgia) may occur.

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LEGENDS

Fig. 1. Examples of the two major classes of nociceptive neurones found in the trigeminal brainstem nucleus complex. As illustrated from data derived from studies in the subnucleus caudalis of the cats, these

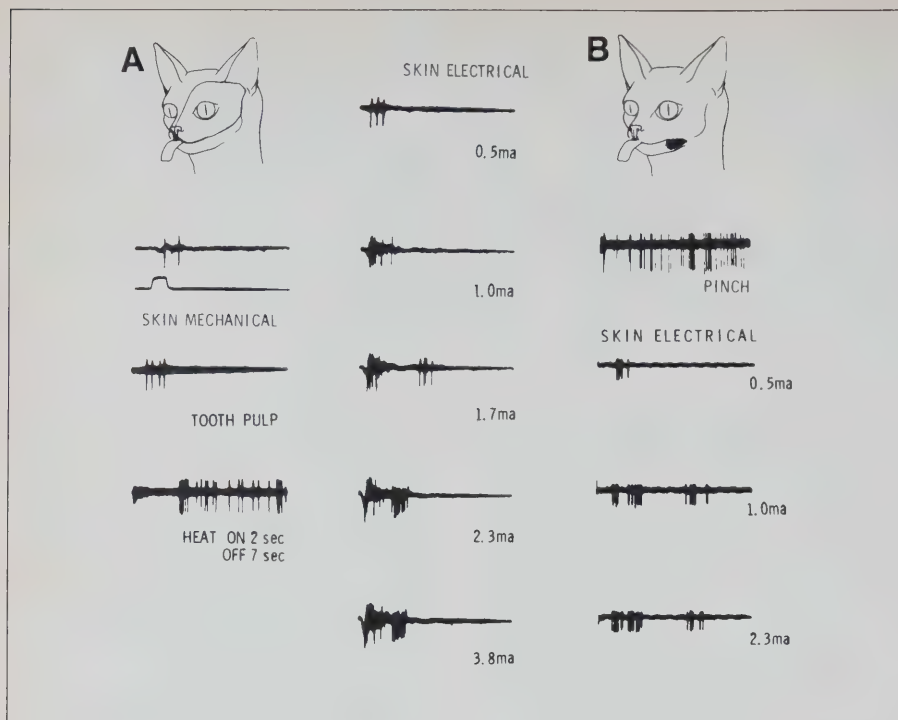


Fig. 1

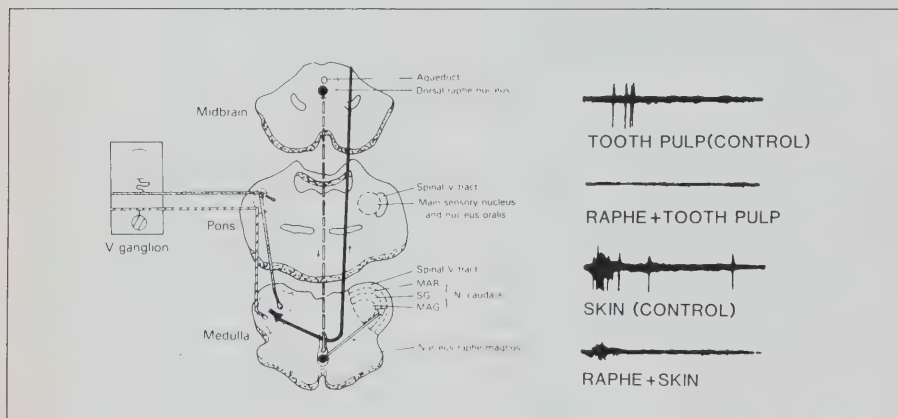


Fig. 2

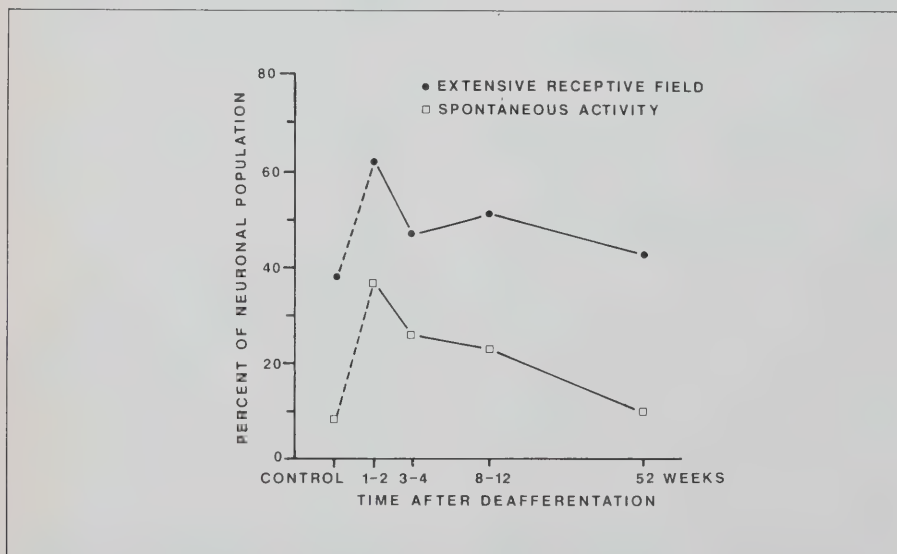


Fig. 3

neurons are the so-called wide dynamic range nociceptive neurone (A) and the nociceptive-specific neurone (B). These caudalis neurones are typically located in laminae I/II, and V/VI, of subnucleus caudalis. This particular wide dynamic range neurone, as well as being activated by tactile stimulation of the area of cat's skin outlined (its so-called receptive field), could also be excited by electrical stimulation of canine tooth pulp, pinch (not shown), and noxious levels of radiant heat applied to the skin. Note in the traces in the middle that with increasing intensity levels of electrical stimulation of the skin, late as well as early bursts of impulses could be evoked in the neurone; the late discharge probably reflects inputs from small-diameter, slowly conducting nociceptive afferent fibres, and the early burst reflects inputs from large diameter, faster-conducting "tactile" afferent fibres. The nociceptive-specific neurone illustrated could only be excited by noxious stimulation of the skin (e.g. pinch) and only from the area of skin outlined on the cat's mandibular skin. The early burst of impulses produced by electrical stimulation of skin probably reflects inputs from small-diameter myelinated (A-delta) nociceptive afferent fibres, and the later burst elicited by electrical stimuli of higher intensity probably reflects inputs from unmyelinated (C) nociceptive afferent fibres. As pointed out in the text and Table I, many of these two types of nociceptive neurones excited by painful cutaneous stimuli can also be excited by noxious stimulation of jaw or tongue muscles, TMJ, or tooth pulp. Time duration of records: A, 100 msec (except heat record: 10 sec); B, 200 msec (except pinch record: 10 sec). Record to pinch in B is at twice the gain for skin electrical records.

Fig. 2. Diagram of a major ascending trigeminal nociceptive pathway, and a descending modulatory pathway that may suppress activity of neurones in the nociceptive pathway. Nociceptive neurones, for example, in subnucleus caudalis, that receive and relay information from small-diameter primary afferent fibres (cross-hatched pathway) only are the nociceptive-specific neurones referred to in Fig. 1. Those neurones that receive information from small-diameter afferent fibres and from large-diameter afferent fibres (stippled pathway) as well are the wide dynamic range neurones (see Fig. 1). Responses of both types of neurones to a particular noxious oral-facial stimulus (e.g. to tooth pulp or skin) can be suppressed by other afferent inputs evoked by, for example, tactile or electrical stimulation of adjacent oral-facial regions (not illustrated). This is evidence suggestive of so-called sensory interaction, involving large afferent nerve fibre-small

afferent nerve fibre interaction. These responses to noxious stimuli are also susceptible to descending controls emanating from higher brain centres, and the traces on the right show that responses of the same wide dynamic range neurone illustrated in Fig. 1 can be suppressed by descending influences from the dorsal raphe nucleus (in the periaqueductal gray) and nucleus raphe magnus. Note that if tooth pulp or noxious skin stimuli, which excited the neurones, are interacted with electric stimuli delivered to the raphe system, the neurone's responses to these noxious stimuli can be completely suppressed. Time duration of each record is 100 msec.

Fig. 3. Effects of tooth pulp deafferentation on the properties of neurones recorded in the adult cat's trigeminal spinal tract nucleus (subnucleus oralis). The ipsilateral maxillary or mandibular canine, premolar and molar pulps were removed by routine aseptic endodontic procedures, and neuronal properties were subsequently assessed at post-operative times varying from 1-2 weeks to 52 weeks and statistically compared with properties of neurones recorded in control (unoperated) cats. The two properties illustrated in this figure are based on data acquired from over 1500 single neurones and relate to (i) neurones with an extensive mechanoreceptive field involving two or all three trigeminal nerve divisions on the face and mouth; and (ii) neurones having spontaneous activity (i.e. tonic firing unrelated to any peripheral stimulus). As the control values indicate, only about one-third of the neurone population normally shows the extensive receptive field property (since most neurones normally have a localized receptive field on the face or mouth from where they can be activated), and well below 10 per cent normally shows spontaneous activity. Note the marked increases in the proportion of these neuronal properties after deafferentation; these increases were statistically significant for the first 3-4 weeks, but gradually returned to control levels. In addition to these two properties illustrated, neurones showing a rapidly habituating response to orofacial tactile stimuli and a sensitivity only to a brisk tap applied to facial or intraoral tissues were also encountered at a significantly higher incidence in deafferented animals compared with controls. These findings underscore both the marked neuroplasticity of the trigeminal neural pathways of even the adult, as well as the functional changes that can be induced in these pathways as a result of peripheral procedures that produce deafferentation.

Dr. Sessle is Associate Dean (Research) and Professor of Dentistry at the Faculty of Dentistry, University of Toronto, Toronto, Ont. M5G 1G6.

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Brig. General W. R. Thompson
(Retired)
CDA Past President

Le brigadier général
W. R. Thompson (à la retraite)
ancien président de l'ADC

CHAIRMAN FINISHES TERM

Our thanks and best wishes to the retiring Chairman of the CDA Membership Committee, Dr. Bill Thompson.

Dr. Thompson's support and encouragement were enjoyed by the committee members in their attempts to improve participation in CDA activities. During his time in office emphasis was placed on more personal contact with CDA members.

Dr. Thompson is succeeded by Dr. Ralph Crawford, Immediate Past President of the Association.

LE PRÉSIDENT TERMINE SON MANDAT

Nos remerciements et nos meilleurs vœux au président du Comité de recrutement de l'ADC, le Dr W. R. Thompson, qui vient de terminer son mandat.

Les membres du comité ont apprécié son appui et ses encouragements dans leurs tentatives pour accroître la participation des dentistes aux activités de l'ADC. Sous la direction du Dr Thompson, on a accordé plus d'importance aux contacts personnels avec les membres de l'ADC.

Son successeur est le Dr Ralph Crawford, président sortant de l'ADC.

CDA/CDSPI PROGRAM PARTNERS

Over the years the National Association for dentistry in Canada, CDA, and its Corporate members (the provincial associations) have sponsored the development of complete insurance coverage for the dentist and his business through the Canadian Dentists Insurance Programs, CDIP.

CDA's Insurance and Investment Council (CDSPI) constantly review the market to ensure the plans offer the best possible coverage to dentists who are CDA members or who are members of a participating provincial association.

STUDENT MEMBER "NO COST" GRAD PACK

Changes have been made to the "no cost" insurance package which is given annually to CDA student members in their graduating year.

Beginning in 1986 the following coverage will be offered —

Life Insurance — \$50,000

AD & D — \$50,000

LTD with COLA — \$2,000/month

L'ADC ET LE CDSPI VONT MAIN DANS LA MAIN

Au fil des ans, l'association nationale pour les membres qui font partie de la profession dentaire, l'ADC, et ses corporations membres (les associations provinciales) ont parrainé, par l'intermédiaire des Régimes d'assurance des dentistes du Canada (RADC), des régimes d'assurance offrant une protection complète aux dentistes canadiens et à leurs entreprises.

Le Conseil des assurances et placements de l'ADC (CDSPI) étudie sans cesse le marché pour s'assurer que les régimes d'assurance offrent la meilleure protection possible aux dentistes canadiens qui font partie de l'ADC ou d'une association provinciale participante.

RÉGIME D'ASSURANCE OFFERT GRATUITEMENT AUX NOUVEAUX DIPLÔMÉS

On vient d'apporter des changements au régime d'assurance que l'ADC offre gratuitement chaque année aux nouveaux diplômés.

A compter de 1986, ce régime d'assurance offrira les protections suivantes :

assurance-vie — 50,000 \$

— General Liability — Office Overhead — Malpractice, removed from the package following a CDSPI review of the requirements of new Grads and of the cost effectiveness of the benefit, were deemed to be of lesser value to the recipient than the new fundamental insurance coverage.

— ASSOCIATE/SUPPORTING MEMBERSHIP —

CDA Board of Governors approved a recommendation to amalgamate the Associate and Supporting member categories under the one title of Supporting Member.

The new eligibility criteria will include the requirements previously stated under both the titles. This change should clear up many problems that occur due to nomenclature misunderstanding.

Establishing the membership fee for this new category at one half of the full member fee in each year was included in the Board Approval.

LIFE MEMBERS SUPPORT CDA LIBRARY

In reply to enquiries from CDA Life Members who no longer pay member dues but who wished to continue to support the national cause, the Association encouraged financial support of the Sidney Wood Bradley Memorial Library.

Charitable gifts of \$25 to \$225 have been received by the "Canadian Dental Association Library Trust Fund". The interest from the fund is used to purchase books and periodicals.

The Library/Resource Centre handles up to 600 requests a month and has become a valuable information source to dentists.

EWS INFO RECRUTEMENT
CDA MEMBERSHIP NEWS 1
P NEWS INFO RECRUTEMENT
VT CDA MEMBERSHIP NEWS
EWS INFO RECRUTEMENT
CDA MEMBERSHIP NEWS 1

décès et mutilation accidentels — 50.000 \$ assurance invalidité à long terme avec indemnité de vie chère — 2.000 \$ par mois

Après une étude effectuée par le CDSPI touchant les besoins des nouveaux diplômés et l'équilibre coûts-avantages, on a décidé de supprimer l'assurance contre les risques de responsabilité civile générale, l'assurance pour les dépenses générales de bureau et l'assurance contre les fautes professionnelles. En effet, on les a jugées de valeur moindre pour les récipiendaires que les nouvelles assurances de base.

MEMBRES ASSOCIÉS ET MEMBRES DE SOUTIEN

Le Conseil d'administration de l'ADC a agréé une recommandation visant à joindre en une même catégorie les membres associés et les membres de soutien.

Pour faire partie de cette catégorie de membres, il faudra répondre aux exigences formulées pour les deux catégories. Ce changement devrait éviter de nombreux problèmes dus à la confusion que créaient celles-ci.

De plus, le Conseil d'administration a accepté que la cotisation annuelle pour les membres de cette nouvelle catégorie soit la moitié de celle des membres ordinaires.

LES MEMBRES PERMANENTS APPUIENT LA BIBLIOTHÈQUE

Plusieurs membres permanents de l'ADC, qui n'ont plus à payer la cotisation, ont exprimé le désir de continuer à appuyer l'organisme. L'ADC les invite à verser un don à la bibliothèque Sidney Wood Bradley Memorial.

Le Fonds de la bibliothèque a déjà reçu de ces membres des dons allant de 25 \$ à 225 \$. Les intérêts de ce fonds sont utilisés pour acheter des volumes et des périodiques.

La bibliothèque et le centre de documentation répondent à quelque 600 demandes par mois et sont devenus une précieuse source de renseignements pour les dentistes.



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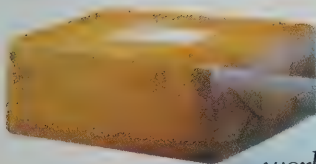
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Scientific

PAIN MODULATION

THEORY AND TECHNIQUES

Dr. Ronald Melzack
McGill University, Montreal, Canada

Recent evidence shows that pain is not simply a function of the amount of bodily damage alone, but is influenced by attention, anxiety, suggestion and other psychological variables. The gate control theory of pain proposes that neural mechanisms in the dorsal horns of the spinal cord act like a gate which can increase or decrease the flow of nerve impulses from peripheral fibers to the spinal cord cells that project to the brain. Above the level of the cord, there are at least three parallel, interacting systems involved in pain experience and response. These three categories of activity subserve the sensory-discriminative, motivational-

affective, and cognitive-evaluative dimensions of pain.

There are two major descending influences on pain-signalling pathways. The first derives from the cortex and involves direct cortico-spinal tracts as well as indirect, diverging pathways. The second comprises a brainstem system which is known to exert a powerful inhibitory influence on transmission through the dorsal horns of the spinal cord as well as other synaptic levels of the ascending systems. These systems modulate the sensory input and provide the neural basis of old and new methods of modulation of pain such as transcutaneous electrical nerve stimulation,

acupuncture, and nerve blocks of trigger points, as well as psychological procedures such as hypnosis and behavior-modification. These neural systems also provide an understanding of the action of endogenous opiate substances, the endorphins and enkephalins.

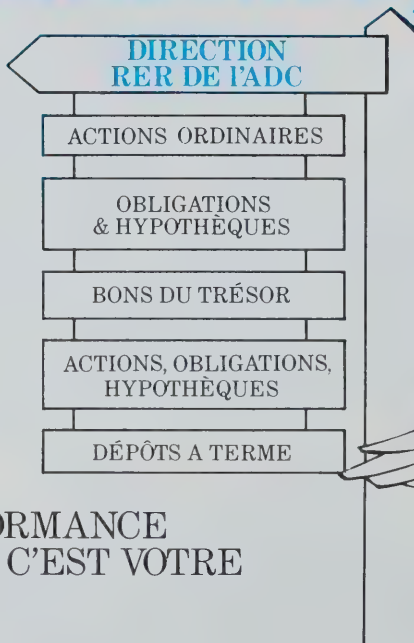
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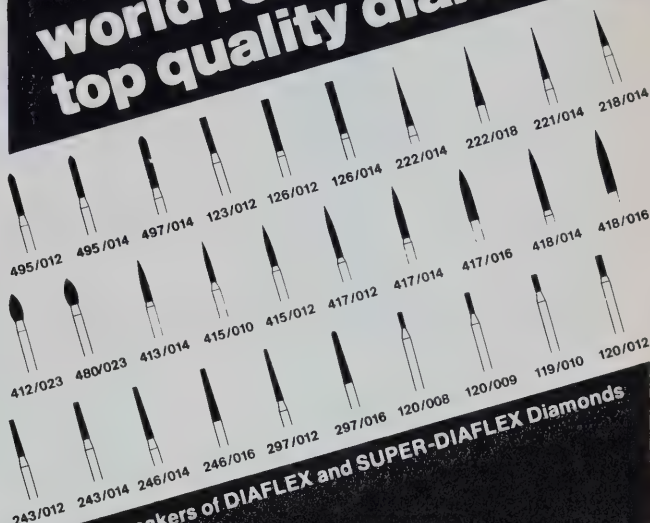
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Deadline for application for the Fellowships beginning JULY 1st, 1986 is:

FEBRUARY 15th, 1986

To obtain an application form write to:

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McMaster University Health Sciences Centre
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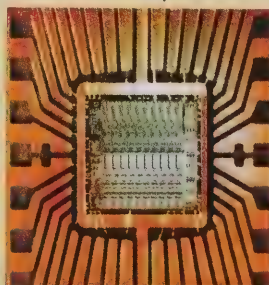
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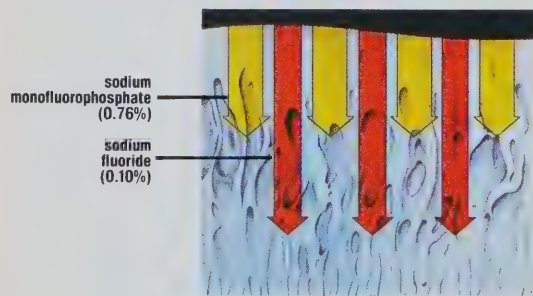
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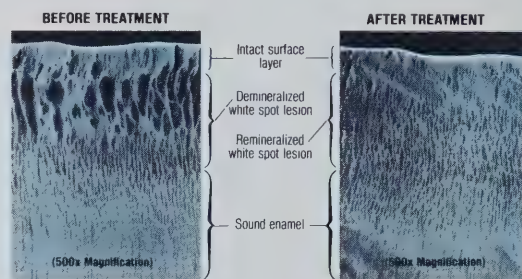
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JOINT CONFERENCE ON PRELICENSURE

CDA • NDEB • CFDE

DATE

February 24 and 25, 1986

LOCATION

Chateau Champlain Hotel, Montreal

BACKGROUND

In September 1984, the CDA Board of Governors approved in principle a recommendation from the Council on Education and Accreditation, "that the Canadian Dental Association sponsor, through the Council on Education, in Consultation with the Council on Student Affairs, a two-day conference with workshops on the prelicensure concept." The Board of Governors asked the Ad Hoc Committee on Mandatory Prelicensure to act as the planning committee and the enclosed program was developed.

GOAL

The overall goal of the Conference on Prelicensure is to provide a forum for discussion of the concept of a mandatory prelicensure period for graduates who have completed a program in undergraduate dental education.

IMPORTANCE

Clinical preparation of dental graduates within the educational framework is a matter of vital concern to the profession, the accreditation process and licensing authorities. Financial sponsorship for the conference on prelicensure is being provided by the Canadian Dental Association, the National Dental Examining Board and the Canadian Fund for Dental Education. Such sponsorship demonstrates the profession's concern with the evolution of dental education with respect to major changes in the patterns of dental disease now being experienced. The conference is accordingly of interest to the wider dental community as well as dental educators.

REGISTRATION

Speakers and resource persons identified for the conference will have their direct expenses for travel and accommodation supported within CDA policy and will receive appropriate claim forms.

Invited registrants will be responsible for their own travel, accommodation and miscellaneous expenses.

Conference registration will be limited. For those attendees who are not speakers a registration fee of \$30.00 will be charged. This will include admission to the Reception Monday evening and lunch on Monday, February 24th and Tuesday, February 25th. A registration form is attached for completion and submission by January 17, 1986 to:

Mrs. Lorraine Emmerson
Prelicensure Conference Secretary
Canadian Dental Association
1815 Alta Vista Drive
OTTAWA, Ontario K1G 3Y6

JOINT PRELICENSURE CONFERENCE

Monday, February 24, 1986 A.M.	Overview <i>Chairman — Dr. Kenneth Bentley Dean, Faculty of Dentistry, McGill University</i>	10:30	Coffee Break
9:00 A.M.	Introduction and Opening Remarks <i>Conference Chairman — Dr. G.S. Beagrie, Dean, Faculty of Den- tistry, University of British Columbia, Vancouver</i>	10:45	The Legal Profession: A historical review of developments re licensure. <i>Dr. R. Ianni, President, University of Windsor</i>
9:20 A.M.	International Trends in Oral Health: <i>Dr. D. Barmes, Chief, Oral Health WHO, Geneva</i>	11:15	The Dental Profession: A historical review of developments re licensure and review of current arrangements for testing and licensure. <i>Dr. W. Dunn, Professor, Division of Community Dentistry, Faculty of Dentistry, University of Western Ontario</i>
10:00	The Medical Profession: A historical review of developments re licensure. <i>Dr. L. Wilson, Dean of Medicine, Queen's University, Kingston</i>	12:00 – 2:00 P.M. Monday February 24, 1986 P.M.	Lunch <i>Chairman — Dr. Kenneth Bentley Dental Education and Prelicensure</i>

2:00 P.M. Dental Schools and Curriculum
*Dr. R. Brooke, Dean, Faculty of Dentistry
University of Western Ontario*

2:20 Relationship of Dental Research and Prelicensure
*Dr. A.R. Ten Cate, Dean, Faculty of Dentistry
University of Toronto*

2:40 Effect on Students and their Teaching
*Dr. D. Beck, Richmond, B.C.
Miss Liliane LeSaux, University of Western Ontario*

3:00 Coffee Break

3:15 The Harvard Experience
*Dr. Paul Goldhaber
Dean, Faculty of Dentistry
Harvard University*

3:45 The Swedish Experience
Speaker to be identified

4:15 Question Period

7:00 Reception

Tuesday February 25, 1986 A.M. Relationship of Prelicensure to General Practice
Chairman: Jean Paul Lussier, Former Dean, Faculty of Dentistry, University of Montreal

9:00 A.M. Benefits and Implications for the Public
*Mr. W. Wilton, Niagara Institute
Niagara-on-the-Lake, Ontario*

9:20 Effect on General Practice
*Dr. B.W. Holmes, President
Canadian Dental Association*

9:40 Prelicensure as an Instrument for Maintenance of Standards
Dr. E. Ambrose, Former Dean, University of Saskatchewan, Saskatoon

10:00 Prelicensure & Other Professional Concerns
*Dr. A. Schwartz, Dean, Faculty of Dentistry
University of Manitoba, Winnipeg*

10:20 Coffee

10:30 Workshops on Education & Practice
*Leaders:
Dr. Marcia Boyd, Vancouver
Dr. Dan MacIntosh, Halifax
Dr. A. Schwartz, Winnipeg
Dr. J. Wright, Ottawa
Mr. Bill Wilton, Niagara*

12:00 Workshops conclude

12:00 - 2:00 Lunch - Oral Health: A Government Viewpoint

Tuesday, February 25, 1986 P.M. Plenary & Workshops Implementation Procedures
Chairman - Dr. Jean-Paul Lussier, Montreal

2:00 P.M. Placement and Location of Graduates
Dr. Kenneth Bentley, Dean, Faculty of Dentistry, McGill University, Montreal

2:20 Examination and Procedures for Licensure
Dr. H. Dick, Chairman, Division of Oral Pathology, Faculty of Dentistry, University of Alberta, Edmonton

2:40 Workshops on Implementation Leaders:
*Dr. Marcia Boyd, Vancouver
Dr. Dan MacIntosh, Halifax
Dr. A. Schwartz, Winnipeg
Dr. J. Wright, Ottawa
Mr. Bill Wilton, Niagara*

3:15 Workshops conclude and reporters prepare for plenary session during Coffee Break

3:30 Plenary session to receive Group Leader Reports

4:00 Chairman's Comments, Summary and Recommendations

5:00 Conference concludes.

REGISTRATION FORM

JOINT CONFERENCE ON PRELICENSURE
CDA - NDEB - CFDE
February 24-25, 1986
Chateau Champlain Hotel, Montreal

NAME: _____

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AFFILIATION: _____

CATEGORY OF REGISTRATION

I shall be attending the prelicensure conference as:

- ☐ Speaker
☐ Invited registrant
☐ Resource person
☐ Other

HOTEL RESERVATIONS

- ☐ I wish to have hotel reservations at the Chateau Champlain Sunday, February 23rd through Monday, February 24th (inclusive). Room rates \$75.00 single; \$90.00 double
- ☐ Please check if these are to be guaranteed for late arrival.

DEADLINE FOR REGISTRATION JANUARY 17, 1986

Registration fee \$30.00. Cheques should be made payable to: Canadian Dental Association

MAIL COMPLETED FORMS TO: Mrs. Lorraine Emmerson, Prelicensure Conference Secretariat, Canadian Dental Association, 1815 Alta Vista Drive, Ottawa K1G 3Y6

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l'hôtel Château Champlain, à Montréal

PRÉLIMINAIRES

En septembre 1984, le Conseil d'administration de l'ADC a agréé en principe une recommandation du Conseil de l'éducation et de l'agrément voulant "que l'Association dentaire canadienne commandite, par l'entremise du Conseil de l'éducation et de concert avec le Conseil des affaires étudiantes, une conférence de deux jours comprenant des ateliers et portant sur la pré-autorisation d'exercer." Le Conseil d'administration a demandé au Comité spécial pour imposer la pré-autorisation d'exercer d'agir à titre de comité organisateur et c'est ainsi que le programme ci-joint a été élaboré.

OBJECTIF

La Conférence sur la pré-autorisation d'exercer a pour but de constituer une tribune pour débattre l'idée d'imposer une période préalable à l'autorisation d'exercer aux diplômés qui ont terminé un cours de médecine dentaire au niveau universitaire.

IMPORTANCE

La préparation clinique des diplômés dentaires durant les cours est une question d'intérêt vital pour la profession, les ordres professionnels et le processus de l'agrément. La Conférence sur la pré-autorisation d'exercer est commanditée par l'Association dentaire canadienne, le Bureau national d'examen dentaire du Canada et le Fonds canadien pour l'enseignement dentaire. Un tel geste démontre que la profession s'intéresse au développement de l'enseignement dentaire face aux changements importants qui ont lieu touchant l'évolution des maladies dentaires à laquelle on assiste présentement. C'est pourquoi la conférence intéresse tout autant la communauté dentaire en général que les enseignants dentaires.

INSCRIPTION

Orateurs et personnes-ressources choisis pour la conférence verront leurs dépenses directes pour le gîte et les déplacements couvertes par l'ADC et recevront, comme il se doit, des demandes d'indemnité.

Les participants invités devront assumer eux-mêmes leurs déplacements, leur gîte et leurs autres dépenses.

Le nombre des inscriptions est limité. Pour les participants autres que les orateurs, il en coûtera 30\$ pour s'inscrire. Cette somme couvrira la réception de la soirée du lundi ainsi que les déjeuners des lundi et mardi, 24 et 25 février. Vous trouverez ci-joint un formulaire d'inscription qu'on vous prie de remplir et de retourner pour le 17 janvier 1986 à:

M^{me} Lorraine Emmerson
Secrétaire de la Conférence
sur la pré-autorisation d'exercer
L'Association dentaire canadienne
1815, promenade Alta Vista
Ottawa (Ontario) K1G 3Y6

CONFÉRENCE SUR LA PRÉ-AUTORISATION D'EXERCER

Lundi 24 février 1986	séance plénière du matin <i>Président: le Dr Kenneth Bentley doyen de la Faculté de médecine dentaire de l'Université McGill</i>	10h45	Le droit: un aperçu historique touchant l'élaboration des permis d'exercer <i>le Dr R. Ianni, président Université de Windsor</i>
9h00	Introduction et présentations <i>Moderateur: le Dr G.S. Beagrie, doyen de la Faculté de médecine dentaire de l'Université de la Colombie-Britannique (Vancouver)</i>	11h15	La profession dentaire: un aperçu historique touchant l'élaboration des permis d'exercer et une révi- sion des dispositions actuelles touchant les examens et l'octroi des permis <i>le Dr W. Dunn, professeur, Division de la dentisterie commu- nautaire, Faculté de médecine dentaire, Université Western Ontario</i>
9h20	Tendances internationales en santé buccale <i>le Dr D. Barmes, directeur de la Santé buccale, OMS, Genève</i>		Déjeuner
10h00	La profession médicale: un aperçu historique touchant l'élaboration des permis d'exercer <i>le Dr L. Wilson, doyen de la Faculté de médecine de l'Univer- sité Queen (Kingston)</i>	12h00-14h00 Lundi, 24 février 1986	séance de l'après-midi <i>Président: le Dr Kenneth Bentley L'enseignement dentaire et la pré-autorisation d'exercer</i>
10h30	Pause-café		

14h00 Écoles dentaires et programme de formation
le D^r R. Brooke, doyen de la Faculté de médecine dentaire Université Western Ontario

14h20 Rapports entre la recherche dentaire et la pré-autorisation d'exercer
le D^r R. Ten Cate, doyen de la Faculté de médecine dentaire Université de Toronto

14h40 Conséquences pour les étudiants et leurs études
le D^r D. Beck, de Richmond (Colombie-Britannique)
M^{me} Liliane LeSaux, Université Western Ontario

15h00 Pause-café

15h15 L'expérience de Harvard
D^r Paul Goldhaber, Doyen Faculté de médecine dentaire, Université Harvard

15h45 L'expérience suédoise
(Orateur à déterminer)

16h15 Période de questions

19h00 Réception

Mardi, 25 février 1986 séance de l'avant-midi
Rapports entre la pré-autorisation d'exercer et l'exercice général
Président: le D^r Jean-Paul Lussier, ancien doyen de la Faculté de médecine dentaire de l'Université de Montréal

9h00 Avantages et conséquences pour le public
M. W. Wilton, Institut Niagara Niagara-on-the-Lake (Ontario)

9h20 Conséquences pour l'exercice général
le D^r B.W. Holmes, président l'Association dentaire canadienne

9h40 La pré-autorisation d'exercer comme outil pour le maintien des normes
le D^r E. Ambrose, ancien doyen Université de la Saskatchewan (Saskatoon)

10h00 La pré-autorisation d'exercer et autres questions professionnelles
le D^r A. Schwartz, doyen de la Faculté de médecine dentaire Université du Manitoba (Winnipeg)

10h20 Pause-café

10h30 Ateliers sur l'enseignement et l'exercice
Animateurs:
le D^r Marcia Boyd (Vancouver)
le D^r Dan MacIntosh (Halifax)
le D^r A. Schwartz (Winnipeg)
le D^r J. Wright (Ottawa)
M. W. Wilton (Niagara)

12h00 Fin des ateliers

12h00-14h00 Déjeuner — la santé buccale: une opinion gouvernementale

Mardi,
25 février 1986

14h00 séance plénière et ateliers de l'après-midi
Mise en vigueur
Président: le D^r Jean-Paul Lussier (Montréal)

14h00 Placement des diplômés
le D^r Kenneth Bentley, doyen de la Faculté de médecine dentaire, Université McGill (Montréal)

14h20 Examens et procédures pour la pré-autorisation d'exercer
Le D^r H. Dick, président, Division de la pathologie buccale Faculté de médecine dentaire, Université de l'Alberta (Edmonton)

14h40 Ateliers sur la mise en vigueur
Animateurs:
Le D^r Marcia Boyd (Vancouver)
le D^r Dan MacIntosh (Halifax)
le D^r A. Schwartz (Winnipeg)
le D^r J. Wright (Ottawa)
M. W. Wilton (Niagara)

15h15 Fin des ateliers et préparation des rapports durant la Pause-café

15h30 Séance plénière: présentation des rapports par les animateurs des ateliers

16h00 Commentaires, résumé et recommandations du président

17h00 Fin de la conférence.

FORMULE D'INSCRIPTION
CONFÉRENCE CONJOINTE SUR LA
PRÉ-AUTORISATION D'EXERCER
ADC – BNEDC – FCED
les 24 et 25 février 1986
Hôtel Château Champlain de Montréal

NOM: _____

ADRESSE: _____

AFFILIATION: _____

CATÉGORIE

Je participerai à la conférence à titre de:

- ☐ orateur ☐ personne-ressource
☐ participant invité ☐ autre

RÉSERVATION D'HÔTEL

- ☐ Je désire réserver une chambre au Château Champlain pour les nuits des 23 et 24 février (dimanche et lundi – départ mardi). Prix: chambre simple – 75\$, chambre double – 90\$.
- ☐ Veuillez cocher ici si vous prévoyez arriver tard et désirez que votre réservation soit confirmée.

DATE LIMITE D'INSCRIPTION: le 17 janvier 1986.
Inscription: 30\$. Prière de libeller votre chèque à l'Association dentaire canadienne.

VEUILLEZ RETOURNER CE FORMULAIRE À:
M^{me} Lorraine Emmerson, Secrétaire de la Conférence sur la pré-autorisation d'exercer, l'Association dentaire canadienne, 1815, promenade Alta Vista, Ottawa, Ontario, K1G 3Y6.

PSYCHIATRIC ASPECTS OF ATYPICAL FACIAL PAIN

Ronald A. Remick, MD, FRCP(C)
Bruce Blasberg, DMD

Presented at the Symposium on Facial Pain, Royal College of Dentists of Canada, Ottawa, September 30, 1985.

Orofacial pain is a common complaint that leads people to seek dental consultation. While most of these complaints relate to dental disease and are effectively diagnosed and treated by the dentist, there are causes of orofacial pain that are puzzling diagnostic and treatment problems for the dentist, physician and the patient.

Atypical facial pain (AFP) is a syndrome that affects 5 per cent of patients who present to dentists with chronic orofacial pain complaints¹. Extensive investigations by dentists, family physicians, neurologists and otolaryngologists often show no definable dental, neurological or medical condition that can account for the persistent, often vague, complaints of these patients. The syndrome, atypical facial pain, was first described in the neurosurgical literature as a disorder that did not fit into the major neuralgia classifications, and when treated with neurosurgical techniques did not respond and often became worse². As this group was studied further, it was hypothesized that some of these patients were experiencing facial pain due to a neuralgia of the sphenopalatine ganglion, vidian nerve neuralgia or autonomic dysfunction^{3,4,5}. Once again, surgical procedures

in this patient population met with only partial success⁶. The possibility that AFP was due to a vascular disorder has also received attention⁷.

A number of reports have suggested that AFP is a psychiatric syndrome⁸⁻¹⁵. Depression was considered the most likely diagnosis in those patients presenting with AFP^{11,12} although hysterical conversion was also reported as a common diagnosis⁹. More recent studies on large samples of patients with AFP suggest that the entire spectrum of psychiatric disorders may be present^{16,17}.

The symptoms of AFP have been consistent since its original description. Patients report a chronic discomfort that may be unilateral or bilateral. The pain is often diffuse and described in vague terms. It does not conform to known neuroanatomic pathways. Descriptive terms often include drawing, pulling, boring, aching. Different anatomical locations reported include complaints of mucosal pain described as "burning" usually associated with the tongue, lips and palate; pain localized to a tooth or group of teeth, and/or a vague diffuse jaw pain.

The demographic, diagnostic and treatment findings on a large sample of AFP patients assessed at our Atypical Facial Pain Clinic are presented for further discussion.

Methods

We have operationally defined atypical facial pain as a chronic orofacial discomfort

of at least six months that is non-anatomic, non-dermatomal in geography, and where the referring dentist and/or physician is unable to make a specific dental or medical diagnosis.

One hundred and twenty one patients with AFP were referred to our Atypical Facial Pain Clinic between 1979 and 1984. Referrals were accepted by either family physicians or general dentists. Before referral the majority of patients (> 70 per cent) has assessment at a specialized Mouth and Mucosa Clinic. Assessment at the

TABLE 1

Sex and Age Distribution of 121 patients with Atypical Facial Pain

	Female	Male
No (%)	100(82.6)	21(17.4)
Range	17-85	24-71
Mean Age	50.4	52.8

TABLE 2

Classification of 121 Patients with Atypical Facial Pain

Category	N	%
Psychiatric Disorders	75	62.0
Diagnosis Deferred	11	9.1
Medical/Dental Disorders	35	28.9

"Mouth" clinic included a history and physical examination of the head and neck, in laboratory investigations, radiography and consultations with an otolaryngologist, dermatologist and a dentist with specialized training in oral medicine. When clinicians at the "Mouth" Clinic can detect no specific diseases that could account for the patient's complaints they are referred to the AFP Clinic. Approximately fifteen per cent of the Mouth Clinic population are referred in this manner.

In the AFP Clinic a complete psychiatric assessment is completed by the author (RAR) or a senior psychiatric resident under his supervision. During this interview, pain complaints and their history, additional medical history, detailed personal and past history and a mental examination is performed. In addition, collateral information (interviews with spouse of patient, discussions with current treating dentist and physician, obtaining all dental and medical records) is obtained and further interviews held in order to arrive at a psychiatric diagnosis (if present). Approximately one half of the patients had further assessment by a neurologist with expertise in craniofacial neurology when neurologic diagnostic uncertainty was present. Laboratory tests (blood chemistries, hematology, urinalysis) were obtained in order to assist the evaluation for possible medical causes of the AFP.

A psychiatric diagnosis was made when clear operational criteria as defined by the American Psychiatric Association Diagnostic and Statistical Manual (DSM-III) were met¹⁸. Those patients diagnosed as having a psychiatric disorder were offered ongoing psychiatric treatment. Psychiatric treatment was individualized according to each patient's specific diagnosis and in accord with current clinical psychiatric practice¹⁹. Treatment was conducted by the psychiatrist who initially assessed the patient,

and ratings of the efficacy of treatment were not, therefore, done under strictly controlled conditions. The Clinical Global Impressions Scale (CGI) which is a 1-7 scale (1 - no mental disorder; 4 - moderate psychiatric illness; 7 - the most severe psychiatric illness)²⁰ was used to measure overall psychopathology and as an index of psychiatric treatment efficacy. A subjective pain rating (SPR) on a 1-10 scale ("1" - no pain or discomfort; "10" - the most severe unbearable discomfort possible) was used to assess changes in pain in relation to treatment.

Data analysis included both categorical and continuous variables. The continuous variables using independent t-tests were performed except where repeated measures were available for subjects. In these cases dependent t-tests were used.

Results

A total of one hundred twenty one patients with atypical facial pain were assessed, one hundred (82.6 per cent) were women and twenty one (17.4 per cent) were men. The overall mean age of the sample was 52.4 years with the men being slightly older than the women ($\bar{x}=52.8$ and $\bar{x}=50.4$ respectively). This difference was not significant ($t=0.64$; $df=119$, $p=0.52$) (see Table 1).

In terms of location of the pain no significant differences were noted with 32 (26.4 per cent) patients having the pain localized to the right side, 32 (26.4 per cent) patients to the left side, 23 (19 per cent) patients had bilateral pain complaints (ie. pain on both sides in a symmetrical fashion) and 34 (28.1 per cent) patients had a non-specific location (ie. both right and left sided pain without symmetry).

Diagnostically, 75 (62 per cent) patients with AFP had a psychiatric diagnosis by DSM-III criteria that was assessed to be etio-

logical in the AFP syndrome. With careful diagnostic assessment a specific medical or dental disorder was recognized in 35 (28.9 per cent) patients that was responsible for the facial pain complaints. In addition to their psychiatric disorder an additional medical/dental disorder was diagnosed in eight (6.6 per cent) patients. In eleven patients (9.1 per cent) a specific diagnosis was deferred as the AFP syndrome did not meet clear operational criteria for a known psychiatric, medical or dental disorder (see Table 2).

Examining the AFP patients with a psychiatric disorder more closely, a wide variety of psychiatric disorders were present. Twenty patients (16.5 per cent) were diagnosed as having an affective (depressive) disorder, 18 (14.9 per cent) had a somatoform disorder ("conversion" reaction, hypochondriasis), 8 (6.6 per cent) patients had a situational or an adjustment reaction, 7 (5.8 per cent) patients were psychotic, 6 (5.0 per cent) had an anxiety disorder and 16 (13.1 per cent) patients had a variety of other psychiatric disorders as outlined in Table 3.

Fifty of the seventy-five (67 per cent) psychiatric patients accepted ongoing psychiatric treatment in our Clinic. Based on the CGI scale the patient group who continued with ongoing psychiatric treatment had a significant improvement in their psychiatric disorder (mean initial CGI - 3.76; mean termination CGI - 2.30; $t=8.74$; $df=49$, $p<0.0001$). The improvement in CGI ratings occurred across the individual psychiatric disorders as well as the group as a whole (see Table 4). Likewise, the Subjective Pain Ratings (SPRS) of those psychiatric patients receiving clinical treatment improved significantly in the group as a whole (mean SPRSi - 6.34; mean SPRSf - 3.80, $t=9.16$; $df=49$, $p<0.0001$) as well as in several of the specific psychiatric diag-

TABLE 3

Psychiatric Diagnosis in 121 Patients with Atypical Facial Pain

Diagnostic Category (DSM-III)	No	%
Affective Disorder	20	16.5
Somatoform Disorder	18	14.9
Adjustment Disorder	8	6.6
Psychosis	7	5.8
Anxiety Disorder	6	5.0
Psychological Factor Affecting Physical Condition	5	4.1
Personality Disorder	5	4.1
Barbiturate Dependence	4	3.3
Dementia	1	0.8
Malingering	1	0.8
Diagnosis Deferred	11	9.1
Medical/Dental Diagnosis	35	28.9

TABLE 4

Psychiatric Treatment Efficacy and Pain Rating Scores in AFP

Diagnosis	N	CGIi	CGIf	P	SPRSi	SPRSf	P
affective	16	3.88	1.81	<.0001	7.38	3.50	<.0001
somatoform	11	3.73	2.27	<.0016	5.82	3.73	<.003
adjustment	5	3.60	1.40	<.0004	6.20	3.20	<.01
psychotic	4	4.75	3.25	ns	5.50	4.50	ns
pers. disorder	3	4.00	3.00	ns	6.33	3.67	ns
anxiety	2	3.00	2.00	ns	6.00	4.50	ns
other	9	3.33	3.11	ns	5.67	4.33	.05
Total	50	3.76	2.30	<.0001	6.34	3.80	<.0001

nostic categories (see Table 4). In psychiatric patients receiving treatment the correlation of the differences between the initial and final treatment evaluation scores of the CGI and SPRS scales is suggestive of a relationship between these scales ($r=0.69$, $p<0.01$; $N=50$).

Just as in the "psychiatric" AFP subjects, those patients ($N=43$) in whom a specific medical or dental diagnosis was the cause of their AFP syndrome a wide spectrum of disorders was found (see Table 5). Myofacial pain dysfunction ($N=10$) was the most common diagnosis but traumatic neuropathy ($N=8$), neuralgia ($N=6$), vascular facial pain ($N=5$), tardive dyskinesia ($N=4$) and migraine ($N=3$) were also present. As medical or dental treatment for these patients was not completed in the AFP Clinic, further pain ratings in relationship to ongoing treatment is not available.

Discussion

This work suggests that a psychiatric illness may present as the syndrome atypical facial pain. Over sixty per cent of the AFP sample studied had a psychiatric syndrome that was felt etiologic in the AFP. Specifically, as the psychiatric disorder improved, the level or intensity of pain decreased, with a good correlation between these two variables. The results suggest that a high index of suspicion of a psychiatric disorder should be entertained in a patient presenting for evaluation of AFP.

While the earliest reports on AFP suggested that this disorder is a psychiatric syndrome^{6,7} the majority of studies concerning atypical facial pain have been completed by dental and non-psychiatric medical specialists^{10,16,21}. The dental textbooks^{22,23,24} suggest that AFP is a psychiatric syndrome, and in the rare psychiatric textbook that discusses the

syndrome of AFP it is included in the neurological chapter of the textbook²⁵. The psychiatric studies that have been completed on AFP suggest that depression is the most common psychiatric disorder associated with atypical facial pain^{8,11,12,26} although other disorders, particularly conversion reactions,^{9,13} have been described.

While depression was the most frequent psychiatric diagnosis found in our patient population it only accounted for 26 per cent (20/75) of the psychiatric diagnoses made. A diagnosis of somatoform disorder (a new diagnostic category which includes the previous diagnoses of hypochondriasis and hysterical conversion disorder) was made almost as frequently, and fifty per cent of the psychiatric diagnoses (37/75) were syndromes other than affective or somatoform disorders. These findings are *not* in keeping with a clinical lore in psychiatry that most chronic pain patients are suffering from an undiagnosed, "atypical", or "masked" depression²⁷. Indeed, the entire spectrum of psychiatric disorders is found in this AFP population.

Based on the clinical data as well as improvement on psychometric ratings, psychiatric treatment was effective in improving the psychiatric disorders associated with atypical facial pain. Almost all patients, no matter what the psychiatric illness, who accepted treatment, improved. That treatment was more effective for some of the psychiatric syndromes (eg. affective disorders, adjustment disorders) and less effective for others (eg. psychotic and personality disorders) is in keeping with the known efficacy of treatments in clinical psychiatric practice¹⁹. We would emphasize that the treatment modalities offered and effective (eg. antidepressant pharmacotherapy for affective disorder; psychotherapy for adjustment disorders; neuroleptic pharmacotherapy for psychosis, etc) were no different for these chronic pain patients than would be offered any other "typical" psychiatric patient.

The psychiatric treatments offered and effective in this AFP patient sample with psychiatric disorders, coupled with the correlation between improvement in psychiatric disorder and pain complaints, suggest that often the syndrome atypical facial pain is but part of the symptomatology of a primary psychiatric disorder. This was certainly the case in over sixty per cent of this sample. Accordingly, psychiatric assessment and treatment (when indicated) should be a routine aspect of the evaluation of the patient with atypical facial pain.

While over one half of the atypical facial pain sample suffered from a psychiatric disorder, nearly thirty per cent of the sample had a dental or medical disorder that was felt to be etiologic in the pain complaints of the patient. This dental/medical disorder

was unrecognized during early assessments of the patient, and it was only with careful evaluation over time that the diagnosis became more clear cut. These findings are in keeping with Rushton's¹⁰ earlier work where one third of his atypical facial pain patients were found to have a specific dental or medical disorder that was not recognized by other clinicians.

While we have no data on the effectiveness of treatment in "dental/medical" AFP, our suspicion is that much like "psychiatric" AFP, the AFP syndrome is but part of the symptom complex associated with a more specific dental or medical disorder that had not been previously recognized. A study evaluating the effectiveness of specific dental/medical treatments and the correlation of pain ratings would be necessary to confirm this hypothesis.

Chronic oro-facial pain may be the result of many different diagnostic possibilities involving many specialties in the dental and medical professions. This has certainly been the experience in our AFP Clinic which emphasizes the necessity of a multidisciplinary approach to this patient population.

One of the tenets of a good dental or medical practitioner is to "do no harm" to one's patients. Unfortunately, that is not our experience, as well as others, with atypical facial pain patients. The earliest reports^{2,6} on this syndrome emphasized the poor response to surgical interventions. A more recent dental report on 100 patients with AFP²¹ stated that 25 per cent had a dental extraction without any relief of their pain.

In earlier work we examined the number of ineffective dental and surgical treatments in 58 atypical facial patients²⁸. Forty of these 58 patients (69 per cent) had a psychiatric disorder and fourteen (24 per cent) had a dental/medical disorder that was assessed to be etiologic in their pain complaints. Seventeen of the forty psychiatric (42.5 per cent) and three of the fourteen medical/dental (21.4 per cent) had at least one ineffective dental/surgical treatment for their pain that did not alter the pain complaints in any way whatsoever. The most common invasive procedures were extractions and endodontic therapies although other procedures occurred. Further, when patients had an unnecessary procedure they tended to have more than one. Seventeen of the twenty one patients who had an invasive procedure had two or more such interventions. It is striking and most unfortunate that forty per cent of the patients with a psychiatric disorder that was effectively treated in our clinic had an irreversible surgical intervention before psychiatric assessment.

Our work suggests that the dental clinician should have a high index of suspicion of a psychiatric disorder in the patient presenting for evaluation of atypical facial

TABLE 5

Medical/Dental Diagnosis in 121 Patients with Atypical Facial Pain

Diagnosis	No	%
Myofacial Pain Dysfunction	10	8.3
Traumatic Neuropathy	8	6.6
Neuralgia	6	5.0
Vascular Facial Pain	5	4.1
Maxillary Sinus Disease	2	1.6
Other Medical/Dental Diagnosis	12	9.9
Diagnosis Deferred	11	9.1
Psychiatric Diagnosis	75	62.0

pain. The suspicion will prove correct in more than 50 per cent of the cases. With little formal education in psychological medicine the dentists may spend a great deal of their professional time managing such patients. If the problem is that of a psychiatric disorder these patients are certainly better served with psychiatric rather than dental treatment. Accordingly, the dentist should know when to consider making a referral for psychiatric evaluation and how to facilitate this referral when indicated²⁹.

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Dr Blasberg is Associate Professor, Oral Medicine, Faculty of Dentistry, The University of British Columbia, and Chairman, Department of Dentistry, Shaughnessy Hospital.

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Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

TYLENOL® Acetaminophen is indicated for the relief of pain and fever. Also as an analgesic-antipyretic in the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests.

N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine in its oral and parenteral dosage forms is available from the manufacturers (Mucormyst, Bristol-Myers Canada Limited trademark for its brand of oral N-acetylcysteine, Parvolex, Glaxo Canada Ltd. trademark for its brand of parenteral N-acetylcysteine), or contact your nearest Poison Control/Information Centre.

DOSEAGE:

Adults:

650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours

Children:

Based on Weight
10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours.

SUPPLIED:

TYLENOL® Drops: Each 0.8 mL contains 80 mg acetaminophen in a deep red liquid vehicle with a slightly bitter, cherry-flavoured taste. Available in amber bottles containing 15 mL† and 25 mL† and a calibrated dropper.

TYLENOL® Elixir: Each 5 mL contains 160 mg acetaminophen in a cherry-flavoured red vehicle. Available in amber bottles containing 100 mL† and 455 mL.

TYLENOL® Chewable Tablets 80 mg: Each round, pink tablet, scored one side and engraved "TYLENOL" the other side, contains 80 mg acetaminophen. Available in amber bottles of 24† tablets.

TYLENOL® Tablets 325 mg: Each round, white tablet, scored on one side and engraved "TYLENOL" the other side, contains 325 mg acetaminophen. Available in amber bottles of 24†, 100 and 500 tablets.

TYLENOL® Capsules 325 mg: Each grey and white capsule, printed "TYLENOL 325 mg" cap and body, contains 325 mg of acetaminophen. Available in amber bottles containing 24† and 50 capsules.

TYLENOL® Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side and "500" other side, contains 500 mg acetaminophen. Available in amber bottles of 30† and 100 tablets.

TYLENOL® Capsules 500 mg: Each red and white capsule, printed "TYLENOL 500 mg" cap and body, contains 500 mg acetaminophen. Available in amber bottles of 24† and 50 capsules.

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TIC DOULOUREUX AND ATYPICAL FACIAL PAIN

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SUMMARY

This paper will focus upon the causes of facial pain which are assumed to be due to pathology within the trigeminal nerve: tic douloureux and atypical facial pain. I will mention other presumed etiologies of facial pain only to establish criteria for differential diagnosis; they include vascular face pains, temporomandibular joint disease, myofascial pain syndromes and pathology of the paranasal sinuses. The neuralgic pains of the face are a large enough topic for any one manuscript; I can only outline what is known about etiology and therapy in the space allotted to me. It is easiest to start by considering tic douloureux, as it has clear-cut diagnostic criteria and reasonably effective medical and surgical treatment.

TIC DOULOUREUX

Symptoms

Even though the classification of pain syndromes of the face and head is often unclear, every physician and dentist should be able to discriminate tic douloureux from any other type of pain (Table 1). Tic is characterized by: 1. Electric shock-like, stabbing pains, 2. unilateral pain during any one epoch, 3. abrupt onset and termination of pain, 4. pain-free intervals between attacks, 5. non-noxious stimulation triggers the pain which is often in a different area of the face, 6. minimal or no sensory loss in the region of pain, and, 7. pain restricted to the trigeminal nerve or, rarely the nervus intermedius, glossopharyngeal or vagus distribution¹³. The pain of tic douloureux is often severe enough to interrupt all purposeful activities.

It is unfortunately true that the patient has not read the text-book; differential diagnosis may not be as easy in the examining room as it is in a lecture or book chapter. Deviations from this classic picture may occur, but the more unusual features the patient

manifests, the less likely is a favorable response to either medication or surgery.

Surgical or anesthetic procedures which damage the trigeminal nerve may lead to a change in the patient's findings and symptoms; it is essential to ascertain what the symptoms were prior to such an operation. Patients with long-standing tic may have a burning pain which follows a severe bout of electric shock-like pain. Iatrogenic nerve damage also may lead to a burning component of the pain. Significant sensory loss mandates a thorough search for structural pathology such as tumor or infection which is damaging the trigeminal nerve; however, classical tic douloureux is rarely found to occur with any structural lesion other than compression of the trigeminal nerve adjacent to the brain stem.

Some patients appear to describe a pain which lasts for minutes or hours which is not characteristic of tic douloureux. Careful questioning may reveal that the patient is actually describing a flurry of brief attacks recurring at a rapid rate and that the intervals between each jab of pain are, in fact, pain-free. I cannot overemphasize the importance of a careful history and physical examination if an accurate diagnosis is to be established.

Tic douloureux is a disease of the elderly population, but it does uncommonly occur in young adults (Figure 1). The peak incidence is between ages 50 and 70. Although the early literature indicated a strong preponderance of women, modern data suggests that 60 per cent of the patients are female. The onset of tic douloureux in younger years is rarely a sign of multiple sclerosis; it does the patient a dis-service to invoke the terrors of such a diagnosis when the only finding is tic pain. I have operated on a patient whose tic began when he was 17; he had a kinked superior cerebellar artery compressing his trigeminal root. There is no known racial or ethnic factor in the incidence of tic douloureux.

The history of bilateral tic pain can be elicited in approximately 3 per cent of the

patients. No patient has bilateral tic pain during one episode; usually an interval of years separates the pains on each side. Bilateral tic does not support any of the presumed etiologies of this pain syndrome; nor does it alter the prognosis for response to either pharmacologic or surgical treatment.

Triggering

Almost all patients with tic will describe a specific triggering stimulus, either light touch or such complex actions as chewing, talking or swallowing. Many patients report that exposure of the face to cold will trigger their pain. The cutaneous trigger is always a non-noxious stimulus and is usually located in the anterior face¹⁰. The trigger area is always ipsilateral to the pain but may be in the same or a different division of the trigeminal nerve. Rarely, the patient may report a trigger area outside the trigeminal territory, usually in the upper cervical dermatomes. Patients with triggering from their scalp often refuse to wash or brush their hair; shaving may be impossible for a man with triggering from the upper lip or face, oral hygiene may be prevented when the triggering is from teeth or gingivae. When swallowing or chewing trigger the pain, the patient may develop inadequate caloric intake.

Distribution of the pain

The overwhelming majority of patients with tic douloureux have their pain restricted to the trigeminal dermatomes. A small number have pain both in the trigeminal areas and in the territory of the nervus intermedius (CN VII), glossopharyngeal (CN IX) or vagus (CN X). Tic pains can also be experienced exclusively in one of these areas.

Nervus intermedius tic douloureux is perceived deep in the ear or in the anterior external canal. The pain may be triggered by touch of the ear canal or by swallowing or talking. Some patients may report bitter taste, salivation or vertigo and tinnitus with their pain attacks.

Glossopharyngeal tic douloureux is

characterized by shock-like jabs of pain in the tonsillar fossa, pharynx or base of the tongue. The pain may radiate to the ear, angle of the jaw or upper neck. Swallowing, yawning, clearing the throat or talking are reported to be triggering stimuli. Some patients with glossopharyngeal tic douloureux have arrhythmias and even asystole with an attack of pain. Glossopharyngeal tic is at least 100 times less common than trigeminal tic; nervus intermedius tic is too rare to have any incidence data.

The most common site of tic pain is the combination of the second and third divisions; the rarest site is the combination of the first and third divisions. **Figure 2** depicts

the distribution of pain in approximately 8,500 patients which have been reported in the literature. Another way of analyzing this data is shown in **Figure 3**: some pain is perceived in the second division in over 44 per cent of the patients; the third division has some pain in 35 per cent and the first division in 19 per cent. Hence, the malar area is the most likely to be involved in the patient with tic. However, this pain syndrome can and does occur anywhere in the face and anterior scalp and all combinations of painful sites have been reported.

Chronology

Tic douloureux is often an intermittent disease. Many patients report intervals of

months or even years between flurries of attacks. Recurrences are almost always in the same area of the face, but there is a tendency for the painful areas to spread. It is common for the intervals between the attacks to decrease and episodes of severe pain to come more frequently. Some patients never experience remission once their disease starts. Patients often report non-noxious minor jabs in their painful areas between episodes of severe pain. Emotional and physical stress do appear to increase the likelihood of severe pain in the patient who has tic; there is no evidence that stress plays an etiologic role. The spontaneous remissions of tic douloureux often lead to unsubstantiated claims for treatment efficacy.

Differential Diagnosis

Tic douloureux should be promptly distinguished from all other face pains. The criteria discussed above suffice to establish the diagnosis. There are no diagnostic studies which can confirm the presence of tic douloureux. Trigeminal tic should be discriminated from a similar syndrome occurring in one of the other cranial sensory nerves; although the pharmacologic management of tic in any region is identical, the use of nerve blocks and selection of a surgical procedure require precise diagnosis of the involved nerve or nerves. This task is readily accomplished by taking a careful history from the patient and ascertaining the exact triggering stimulus and site of pain.

This disease must also be distinguished from atypical facial pain of the unilateral variety (**Table 1**). Atypical facial pains will be discussed in more detail below; they are characterized by continuous, non-electric shock-like, burning pain which is often not triggered and often escapes the trigeminal territory. Atypical face pains are most common in younger women.

TABLE 1

Characteristics of Facial Pains

Tic Douloureux Intermittent pain-free intervals, abrupt on and off Stabbing, electric shocks, sharp	Atypical Facial Pain Constant Burning, aching, superimposed jabs	Vascular Facial Pain Intermittent, clustered Throbbing, burning	Myofascial or TMJ Pain Constant fluctuation Aching, radiating associated with jaw use Unilateral Lateral facial
Unilateral Trigeminal, rarely Nervus Intermedius Glossopharyngeal or Vagus	Unilateral or bilateral Trigeminal, upper cervical	Unilateral Mid- or upper facial	Unilateral Lateral facial
Minimal or no sensory changes Triggered by non-painful stimulus, always ipsilateral, usually anterior face	Frequent sensory changes Rarely triggered; trigger in area of pain when present	No sensory changes No trigger	No sensory changes No trigger
No facial flushing lacrimation or rhinitis No local tenderness	No facial flushing lacrimation or rhinitis Rarely local tenderness, often dysesthesia	Facial flushing lacrimation rhinitis Rarely local tenderness usually mild	No facial flushing, lacrimation or rhinitis Tender over TMJ or muscles of mastication

TABLE 2

Medications Useful for Tic Douloureux

Generic Name	Brand Name	Pill Size	Usual Dosage/Day	Common Side Effects
Carbamazepine	Tegretol	200 mg.	600-1200 mg.	Nausea, dizziness somnolence, hepatic and hematopoietic dysfunction
Phenytoin	Dilantin Epanutin Epamin et al.	100 mg.	300-500 mg.	Nausea, dizziness, somnolence, ataxia dermatitis
Lioresal	Baclofen	10 mg.	40-80 mg.	Nausea, dizziness, confusion, drowsiness, muscle weakness

TABLE 3

Surgical Procedures for Tic Douloureux

Peripheral neurectomy
Peripheral radiofrequency or cryoprobe lesions
Gangliolysis (radiofrequency or glycerol)
Compression/decompression of the Gasserian ganglion
Retrogasserian neurotomy, subtemporal
Retrogasserian neurotomy, suboccipital
Trigeminal tractotomy
Microvascular decompression of the trigeminal nerve

Myofascial pains involving the muscles of mastication or temporomandibular joint pain may be difficult to separate from each other but should not be confused with tic douloureux. These syndromes consist of pain which is predominantly in the lateral face, is described as cramping, aching or burning, is often associated with using the jaw or its muscles, is associated with tenderness to palpation of the involved muscles and may radiate into the scalp or neck.

Vascular headache and facial pains are a confusing group of pain syndromes. These are usually intermittent, burning or throbbing, dysesthetic pains which come in clear-cut episodes and are frequently associated with autonomic signs such as lachrymation, rhinitis, facial sweating and facial flushing. The attacks may be random or clustered and have numerous variants which are often eponymously described. There is a group of patients who have a pain syndrome which has some features of atypical facial and vascular pains.

Local pathological processes in the paranasal sinuses, jaws, teeth, pharynx or base of the skull can lead to severe pain. This type of facial pain is usually constant and is described as aching, throbbing or burning, but rarely as shock-like. The pain is not triggered by non-noxious stimulation remote from the painful area and if a branch of the nerve is involved in the disease, there may be sensory loss. Physical examination and the appropriate diagnostic studies will often reveal the pathology.

Etiology

There is no adequate explanation for either the etiology or the pathophysiology of tic douloureux. Certainly, the observations made by Jannetta and subsequent neurological surgeons have made it apparent that the vast majority of patients with classical tic douloureux have mechanical compression of the trigeminal nerve as it leaves the pons and traverses the subarachnoid space toward Meckel's cave^{7,8}. The most common finding is cross-compression by a major artery, usually the superior cerebellar, but sometimes such vessels as the posterior inferior cerebellar or the vertebral or the anterior inferior cerebellar arteries. A few patients have been found to have a vein running across or even through the nerve, and a very small incidence of arteriovenous malformations or tumors has also been reported^{3,7,8}. The contemporary neurosurgical literature certainly emphasizes the high likelihood of finding a structural lesion in the subarachnoid space adjacent to the pons in every patient with tic douloureux. The region of impingement of the blood vessel upon the trigeminal root appears to correlate with the region of face pain. When the pain is perceived in the second or third

trigeminal division, the usual finding is compression of the rostral and anterior portion of the nerve by the superior cerebellar artery. If first division pain is present, the most frequent finding is cross-compression of the trigeminal root in its caudal and posterior portion, most often by the anterior inferior cerebellar artery.

There are those who still doubt the causal relationship between a lesion at the trigeminal root and tic douloureux. A small number of autopsy studies have been done on patients with this disease, but the findings are equivocal. The anatomic relationships during life and at post mortem examination are different, as the arterial system collapses and the brain stem moves posteriorly in a supine cadaver; autopsy studies of the gross anatomy may not be able to answer this question.

A very small percentage of the patients with tic douloureux will have multiple sclerosis as an underlying disease. The autopsy findings on these patients, which have been confirmed in a small number of surgical observations, include a demyelinating plaque in the trigeminal posterior root¹². It is well-known, however, that plaques are frequently found in the descending trigeminal tract and in the lemniscal systems; it is not at this time possible to argue that a plaque in the trigeminal root is either necessary or sufficient to cause tic douloureux. A patient with multiple sclerosis can have arterial cross-compression of the trigeminal root!

Finally, we do not know if there are patients with similar cross-compressing lesions who do not have tic douloureux or any other cranial nerve dysfunction. The lengthening and kinking of arteries, which is a common concomitant of the aging process, certainly occurs within the cranium of far more patients than have tic douloureux. We do know that there is a small number of patients whose neurosurgeons have been unable to locate a cross-compressing lesion at the time of craniectomy. Why these people have tic is a mystery.

Another etiologic theory has been described in the dental literature. Ratner and his associates believe that tic douloureux is due to foci of abscess and bone resorption with irritation of the trigeminal nerve in the maxilla or mandible^{15,17}. Even among dentists, this theory is not widely accepted. Similar cavities are seen in the jaws of people with no pain or history thereof. The treatment of such cavities does not uniformly and quickly lead to symptom abatement. Some patients with tic douloureux cannot be shown to have these cavities. Whether or not the cause of the disease lies in the jaws, there is little question that

abscesses and other pathological processes in the orofacial structures can act as the triggering stimulus for tic.

Pathophysiology

How a demyelinating plaque or an infection in the jaw or an artery pressing on the trigeminal nerve can cause as unique a pain syndrome as tic douloureux is unknown. There is no animal model for a pain syndrome which resembles tic; we have only some theoretical explanations based upon small bits of information.

Two generic schemes for the explanation of tic douloureux can be identified: the "centralist" and "peripheralist." The former is

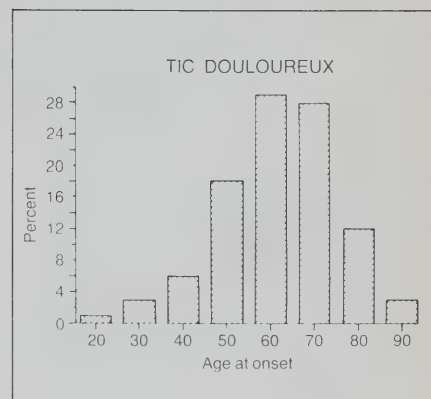


Figure 1 Tic douloureux: Age of onset

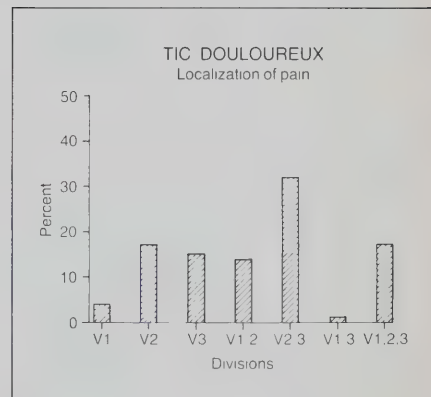


Figure 2 Tic douloureux: sites of pain

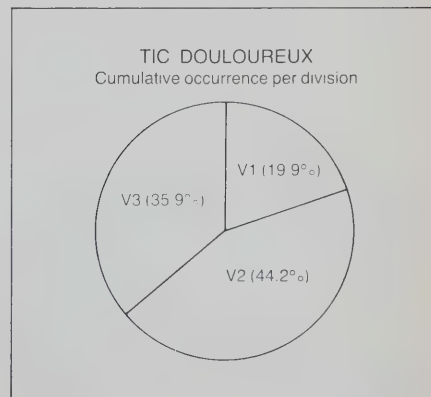


Figure 3 Tic douloureux: regions involved

based upon the similarities of tic douloureux to focal epilepsy and emphasizes the role of deafferentation in the genesis of neuronal hyperactivity¹. Changes in dorsal root reflexes and synaptic function in the trigeminal system have also been described⁹. The peripheralist concept notes that changes in the trigeminal nerve myelin and axons may lead to altered peripheral nerve sensitivity to chemical and mechanical stimuli and ties the pain syndrome to suspected peripheral etiologies¹⁰. Other theories based upon ephaptic connections, reverberating circuits and altered central connectivity due to deafferentation have also been proposed.

Calvin came to the conclusion that both a peripheral and a central mechanism were required to explain the phenomena of tic douloureux⁴. These studies indicated that a peripheral nerve lesion (in the trigeminal root or distal) was the first event in a process which led to central synaptic changes. It is clear that demyelination and axonal injury can lead to reflected axon potentials, spontaneous spike generation and repetitive discharge to a single impulse, as well as heightened response to mechanical and chemical alteration in mid-axon. The response of the central synapses to altered peripheral events was thought to lead to the development of tic. Such a complex theory is required to explain many of the phenomena of tic: triggering by non-noxious stimuli, separation of the trigger area from the painful region, sudden onset and cessation of pain, and response to anticonvulsant medications.

TREATMENT

Pharmacologic

The mainstays of the pharmacologic management of tic douloureux are the anticonvulsant medications, carbamazepine and phenytoin (Table 2). Baclofen has recently been introduced and may prove to be a valuable medication. Other drugs are sometimes helpful, but they are not indicated as primary medications. Scattered reports of the efficacy of other anticonvulsants have appeared but have never been corroborated with appropriately controlled studies.

Carbamazepine

Carbamazepine is the most likely drug to control tic douloureux; approximately two-thirds of the patients will report symptomatic improvement. It must be remembered that these medications do not treat the underlying disease; they only provide symptomatic relief. This drug should be started on a daily dose of 100mg ($\frac{1}{2}$ tablet) and the dose incremented by 100mg every two days until a daily dose of

600mg is reached. Of course, if pain relief occurs on a lower dosage, the amount taken should not be increased. After one week at 600mg/day, if there is no pain relief, the daily dose should be increased by 200mg (one tablet) for one week; this process can be repeated until a total daily dose of 1800mg is reached. Higher doses have not been more effective. Carbamazepine should be administered at least every eight hours to maintain stable blood levels. Carbamazepine is a gastric irritant in some patients and should not be taken with an empty stomach. Some patients will develop central nervous system side effects which render the drug intolerable. A very small incidence of hematosuppression and liver dysfunction has been reported; because of the gravity of this complication, a monthly CBC should be obtained for the first year and quarterly thereafter. Most patients have some lowering of the white count; there is no need to stop this drug unless the WBC falls below 3500 cells/cmm. The strategy for this drug is to push the dosage until either pain relief or toxicity occurs. Serum levels have not been reliable predictors of either pain relief or toxicity, although recent papers have suggested that a range of 24 to 43 $\mu\text{mol/l}$ was optimal¹⁹. About 25 per cent of the patients will find the side effects of carbamazepine unacceptable; about 45 per cent will be satisfied with it. It is sometimes necessary to carefully titrate the carbamazepine dosage to achieve pain relief without unacceptable side effects.

Phenytoin

Phenytoin is the second choice of medication for tic douloureux. Approximately 25 per cent of patients will get good pain relief with serum levels of 15-25 μg ; the strategy for this drug is to obtain adequate serum levels for three weeks; if there is no relief of pain the drug can be discontinued, as higher doses only lead to toxicity. The usual requirement to reach the optimal serum level is 300-400mg/day in two divided doses. If the patient is having severe pain, it is prudent to give a 1,000mg loading dose to achieve rapid blood levels. Central nervous system side effects are usually related to toxic levels, but some patients cannot tolerate even low levels of this drug.

Baclofen

This is a relatively new drug which was developed for the treatment of spasticity but was found by Fromm to be effective in some patients with tic douloureux⁵. It must be started gradually: 5 mg TID and increased by 5 mg every two days until either pain relief or toxicity occurs. The maximum dose is 80 mg/day, and the drug should be tapered and not suddenly discontinued, especially in the elderly.

Chlorphenesin and Mephenesin

These drugs are not commonly utilized today. Their duration of action is short and they are not as effective as the anticonvulsants.

Narcotics

Narcotic analgesics have no role in the long-term management of tic douloureux or atypical facial pains. Narcotics may be safely used on a short-term basis when awaiting an adequate serum level of an anticonvulsant or if anticonvulsants have failed and surgery is scheduled for the immediate future. Narcotics do not relieve the pain associated with nerve injuries and they are likely to contribute to the patient's depression. The best they ever do is "... take the edge off my pain. . ." No tic patient is adequately treated by analgesics.

Tranquillizers and Sedative-Hypnotic Medications

These agents have no specific action for the patient with tic douloureux, and they cannot be relied upon to have any therapeutic effect.

Nerve Blocks

Local anesthetics injected into either the trigger area or the painful area will temporarily stop the pain of tic douloureux. Rarely, the patient will report pain relief which outlasts the expected duration of the agent utilized. Nerve blocks can also be used to show the patient the effects of a planned neurectomy or total rhizotomy, but these are not good primary surgical procedures. Local anesthesia with a long-acting agent such as bupivacaine can give the patient some peace while adequate serum levels of an anticonvulsant drug are being obtained or planned surgery undertaken.

Alcohol blocks of the peripheral branches of the trigeminal nerve or the Gasserian ganglion have a long history in the management of tic douloureux. Experienced operators have reported good results, but the average experience is not very favorable. Alcohol blocks rarely last longer than one year and repeated blocks have a very low success rate and high morbidity. The amount of hypalgesia and anesthesia is difficult to control. Alcohol blocks are less satisfactory than gangliolysis and are no longer standard therapy when modern technological resources are available.

Dental Procedures

Physicians, dentists and patients often think that there must be something wrong where it hurts; this has led to the extraction of numerous healthy teeth or extensive endodontic procedures. It is worth noting

that tic douloureux perceived in the nose never results in surgical excision of that structure; tic in the teeth often results in extraction. This is a commentary on the socially determined propriety of therapies, not upon an understanding of pathophysiology. Similarly, surgical procedures on the paranasal sinuses are not effective.

Surgical Therapies

The list of surgical treatments for tic douloureux extends from the peripheral nerve to the brain stem (Table 3). No surgical procedure is warranted unless the patient has failed pharmacological therapy, either because of inadequate pain relief or unacceptable side effects. The two primary surgical treatments for tic douloureux are gangliolysis and microvascular decompression of the trigeminal nerve via a suboccipital craniectomy.

Gangliolysis

This procedure is the most recent development in the long history of destructive procedures for tic douloureux¹⁸. The goal is to produce the least neurological deficit which will control the patient's pain. Gangliolysis is performed by placing a needle through the cheek into foramen ovale and into the rootlets behind the Gasserian ganglion. There are two methods of making a lesion: utilizing thermally controlled radio-frequency current to heat and destroy selected portions of the posterior rootlets or the injection of glycerol into the cistern of the trigeminal ganglion⁶. This operation offers an 80 per cent chance of one year of pain relief and a 60 per cent chance of five years' success; the complication rate is less than 1/2 per cent¹³. Gangliolysis is particularly useful in the debilitated or elderly patient who would have significant risk from a major surgical procedure.

Microvascular Decompression

The popularity of this operation stems from the publications of Jannetta^{7,8}. It is performed under general anesthesia via a suboccipital craniectomy utilizing a microscope to visualize the trigeminal nerve as it leaves the pons. Compression by a vascular structure is relieved by repositioning the offending artery or coagulating a vein. This operation offers about an 85 per cent long term success rate and does not lead to any sensory loss. The complication rate is about 3 per cent and the mortality rate is less than 1 per cent.

Peripheral Neurectomy

These procedures are indicated only when gangliolysis has failed and the patient cannot or will not tolerate a suboccipital craniectomy with microvascular decompression.

They produce dense numbness and rarely provide more than a year of pain relief. Repeat avulsions of peripheral branches of the trigeminal nerve are even less likely to succeed.

Compression or Decompression of the Gasserian Ganglion

These procedures were popular prior to the development of microvascular decompression and gangliolysis. They probably were effective because of minor damage to the trigeminal nerve, ganglion or rootlets and require a craniotomy via the middle fossa. There is no indication for such a procedure at the present time.

Retrogasserian Neurotomy

Sectioning the trigeminal root between the Gasserian ganglion and the pons was the standard intracranial procedure for the first half of the twentieth century. This operation is indicated when no compression of the trigeminal nerve is discovered during suboccipital craniectomy or if microvascular decompression fails to provide long term pain relief. It is wisest to perform a partial rhizotomy, as this lessens the likelihood of anesthesia dolorosa and reduces the morbidity of a totally numb face. The standard approach today is via the posterior fossa; the subtemporal approach is seldom used.

Trigeminal Tractotomy

Section of the descending trigeminal tract in the medulla produces the loss of pain and temperature sensation in the ipsilateral face and pharynx. It does not alter touch sensation. This operation is indicated when rhizotomy has failed to alleviate the patient's pain and when all other measures have failed. It is carried out via a small suboccipital craniectomy and laminectomy of C1 and C2. Surgical morbidity is high if the operator is not experienced and does not use both anatomic and physiologic localization techniques. This operation can be utilized for tic pain which involves the territories of the nervus intermedius, glossopharyngeal and vagal nerves, as the pain and temperature fibres for all of the latter travel in the medial aspect of the descending trigeminal tract¹¹.

ATYPICAL FACIAL PAINS

Although there certainly is no published support for my viewpoint, I strongly believe that the atypical facial pains should be separated into the unilateral and the bilateral varieties. There is suggestive evidence that the etiologies may differ; it is obvious that the diagnosis of atypical facial pain is a waste-basket category and the time has come to attempt to impose some classification upon what is clearly a confusing group of pain syndromes.

Unilateral Atypical Facial Neuralgia

Unilateral atypical facial neuralgia is a diverse group of facial pain problems which have a common symptomatology but varied etiology. It is more common in females and seems to be a disease of young adults. The pain is rarely as severe as that of tic douloureux, and the evidence for successful treatment in most patients is sparse. The literature is littered with unsubstantiated hypotheses of etiology and treatment schemes which lack any demonstrated efficacy. Part of the problem is the heterogeneity of this group of patients.

Symptoms

Atypical facial pain differs from classical tic douloureux in every respect. The pain is reported as continuous but may fluctuate in intensity. Pain-free intervals are rarely reported. The pain is described as burning, aching or cramping and not as electric shock-like, although the occasional patient will have some shocks superimposed upon the constant pain. The distribution of the pain is often within the trigeminal territory, but may extend into the upper neck or posterior scalp. The patient frequently reports significant hypesthesia in the area of the pain and may also have dysesthesia. The pains are not triggered by remote stimuli, but may be intensified by stimulation of the painful area itself. Autonomic phenomena are usually not seen with atypical facial pain.

Etiology and Pathophysiology

There is no identified uniform etiology of unilateral atypical facial pain. Some patients will be found to have an infection of the paranasal sinuses, jaws or base of the skull and it is possible that the infectious and inflammatory process can lead to nerve irritation and thus be the originating factor for the pain. How such a process can lead to a pain syndrome which far outlasts the active phase of the disease process is unclear. A small number of patients will be found to have a malignant neoplasm invading the base of the skull and traumatizing branches of the trigeminal nerve at their cranial foramina. On rare occasions, a benign tumor of the trigeminal nerve or the meninges can lead to atypical facial pain²¹. Some neurosurgeons have expressed the opinion that vascular compression of the trigeminal nerve distal to the central-peripheral myelin junction (which is the site of the compression which seems to cause tic douloureux) can lead to atypical facial pain.

There are patients who sustain clear-cut trauma to the peripheral branches of the trigeminal nerve via facial lacerations and

contusions and who later develop an atypical pain syndrome in the territory of the damaged nerve. This type of pain may persist even after the sensory loss has disappeared, although in some patients the return of sensation is associated with a remission in the pain complaint. Finally, the vast majority of patients with atypical facial pain do not have any discernible etiologic factors. Interestingly, most of the latter group are young women and seem to have significant psychopathology. Many are reported to commit suicide. Whether the complaint of pain is the cause of the psychopathology or *vice versa* is unknown.

Diagnosis

The diagnosis of unilateral atypical facial pain is established when the patient complains of unilateral pain which meets the criteria described above. Unfortunately, not all patients present with a clear-cut set of symptoms. A few patients will have a pain syndrome which combines some of the features of tic douloureux with some of atypical facial pain. More and more reports are appearing which describe patients with pain syndromes which have some of the features of cluster headaches or muscle tension headaches with atypical facial pain. The most accurate diagnosis may in fact be a combination of two or more of these syndromes. It is important to recognize that damage to the trigeminal nerve which is a deliberate treatment of tic douloureux can result in the development of an atypical facial pain pattern superimposed upon the tic. For this reason it is essential to carefully ascertain what the pain syndrome was like prior to nerve injury.

When a patient presents with unilateral atypical facial pain, the physician must undertake the search for a treatable causative lesion. This entails skull x-rays, CT scan with particular attention to the skull base, careful dental and otolaryngological evaluation and thorough neurological examination.

Treatment

Atypical facial pain is difficult to manage and there are no proven therapies. Since a small percentage of the patients will have a treatable structural lesion, the first step is always the search for pathology. This will usually be fruitless, but does at the least reassure the patient that there is no major disease which is causing the pain. If no lesion can be found, the treatment is symptomatic. The combination of a tricyclic antidepressant and a phenothiazine does help some patients. The standard dose is amitriptyline 75 mg at bedtime and prolixin 1 mg QID. Other patients may respond to anticonvulsant medications, especially when their pain complaints resemble to

some degree tic douloureux. **Table 2** lists the commonly used anticonvulsants. There are reports of good responses to almost every type of drug or nostrum, but there is little evidence to support vitamins, amino acids, or physical therapies.

Psychotherapy for atypical facial pain has been extensively discussed in the psychiatric and psychologic literature. Controlled studies cannot be found, and it is difficult to evaluate the role of these types of treatments. Certainly, if the patient has significant psychopathology in addition to the face pain, it is reasonable to make use of whatever form of psychotherapy seems most appropriate.

Surgical treatments for atypical facial pain do not have a good track record. Operations which further damage the trigeminal nerve are notoriously unsuccessful in the majority of patients and often lead to increased complaints of pain and numbness. A few reports of the efficacy of trigeminal tractotomy and other ablative lesions of the midbrain, thalamus and brain stem can be found. Others have reported some success with implanted stimulators of the trigeminal ganglion or thalamus¹⁴. There is also some success reported with decompression of the trigeminal nerve in the subarachnoid space distal to the site of cross-compression found in tic douloureux. In general, patients with unilateral atypical facial pain should not be offered destructive surgical procedures.

Bilateral Atypical Facial Pain

Bilateral atypical facial pain is a disease without known etiology. The patient is almost always female; there is no age predilection. The pain is described as constant and burning and is not triggered. Sensory examination is either unremarkable or slight hypesthesia, paresthesia or dysesthesia may be found. Identical pains are seen by physicians on the face and by dentists intra-orally. Indeed, a similar burning, constant pain in the rectal area is also well known. All three of these bilateral burning pains are not associated with any structural pathology yet identified and do not respond to any specific pharmacologic or surgical procedure. In fact, ablative surgery or alcohol blocks are virtually certain to add to the patient's complaints. The patient often has significant emotional stressors and psychopathology, but how these relate to the pain is unclear²⁰. Psychologic therapies may be of value; the best thing that the dolorologist can do is to prevent the patient from having inappropriate drug therapy or surgical procedures. Some of these patients do appear to benefit from tricyclic antidepressants in combination with a phenothiazine, but it is difficult to be optimistic about any form of treatment in this group. There is little question that a

good doctor-patient relationship can keep this type of patient out of trouble; the complaints do seem to abate over years.

CONCLUSIONS

There is very little logic to the diagnosis or the management of facial pains. Although tic douloureux and atypical facial pains are thought to be due to pathology intrinsic to the trigeminal nerve or its brain stem connections, this does not discriminate them from other types of facial pain labelled as vascular, muscular or stress related. Management is based solely on the clinical findings and history, as, with the exception of tic douloureux, there is no real understanding of the etiology of the facial pains. Even though the pathology in the vast majority of patients with tic is clear-cut, the pathophysiology of all pain syndromes of the face, including tic, is not understood. If ever there was a need for both clinical and basic research, it is in the area of facial pain. It appears to me that a variety of etiologic agents can alter the properties of axons so that they no longer are faithful messengers of what is happening at their peripheral transducers. I suspect that we will understand the facial pains only when we know how damaged axons behave and what occult pathology leads to their misbehaving.

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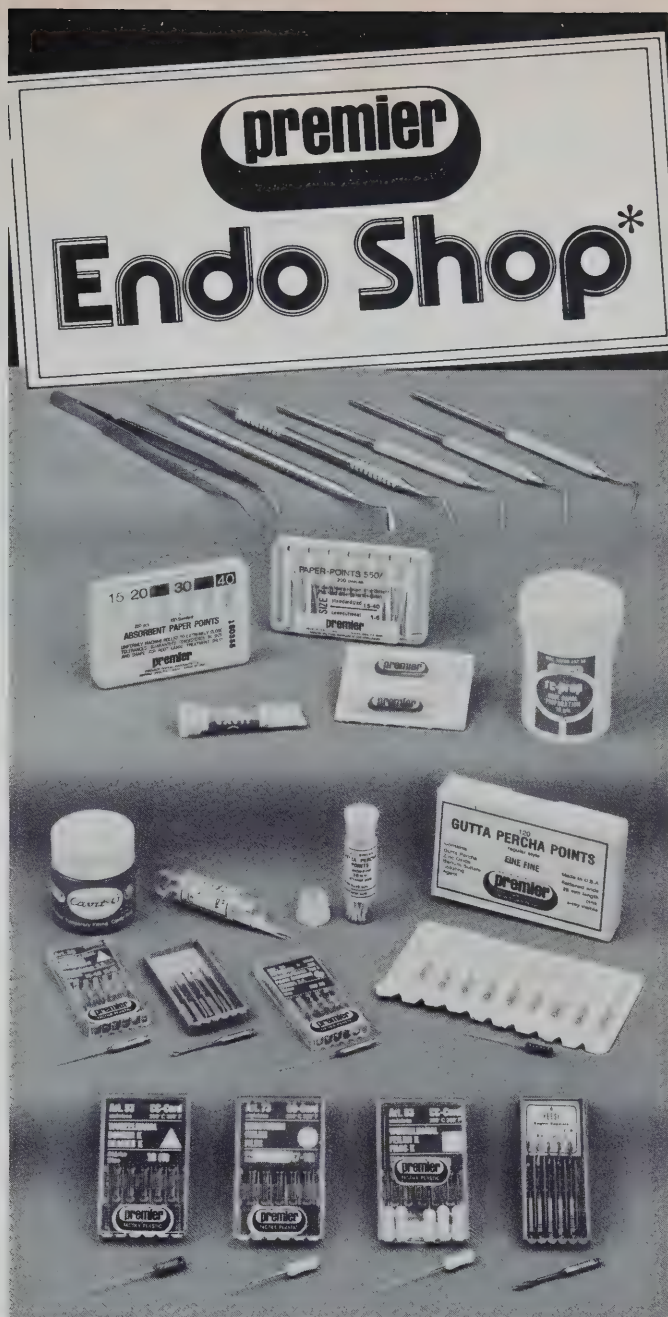
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LE TRAUMATISME FACIAL ET SON TRAITEMENT

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Il est très malheureux que plusieurs praticiens généraux ainsi que spécialistes, tant dans les disciplines médicales que dentaires, envisagent la région du visage comme un espace anatomique très connu mais n'appartenant à personne. La complexité tant anatomique que physiologique du massif facial permet en effet à plusieurs disciplines de s'intéresser au traitement chirurgical des difformités, tant congénitales qu'acquises. En effet aujourd'hui, aucune limite géographique ne devrait exister entre la discipline ou les disciplines devant s'occuper de telle ou telle région du visage, pour la simple raison que les processus pathologiques ou traumatiques ne reconnaissent absolument pas les lignes de démarcation qui furent faites par les humains. Secondairement, la complexité des problèmes associés à la région du visage démontre assez facilement, je crois, que le traitement de ces patients provient totalement d'un travail d'équipe.

Il est assez évident que plusieurs façons de pratiquer peuvent varier d'un milieu hospitalier à un autre, mais toutefois, il devrait exister une équipe s'occupant du visage et parmi les membres composant cette équipe, nous pouvons rencontrer le chirurgien buc-

cal, le dentiste, le chirurgien général, l'ophtalmologiste, l'oto-rhino-laryngologiste, le plasticien, ainsi que l'interniste. De plus, dans les centres où ceci est facilement et physiquement possible, le neuro-chirurgien est sans équivoque le maître d'oeuvre des traitements. L'équipe formera donc alors une atmosphère de collaboration médico-chirurgicale intense, de façon à fournir au patient les meilleurs traitements possibles.

Les traumatismes de la région du massif facial produisent des problèmes d'ordre psychologique, physique et économique, lesquels sont de prime importance pour le patient. À cause de ceci, le chirurgien devra diriger tous ses efforts à rétablir le fonctionnel et l'esthétique le plus rapidement possible. Ceci ne veut pas dire que des opérations faites à la hâte et sans retard devraient toujours être accomplies. Toutefois, seules les interventions qui après une évaluation attentive du patient et considérant les circonstances devraient être faites. Il est à réaliser qu'il n'existe aucune formule magique pour traiter ces patients. Toutefois, des principes généraux doivent être compris et adaptés à chacun des cas.

Le traitement primaire des traumatisés du massif facial comprend la *conservation de la vie et la diminution de la morbidité*. Le

traitement primaire consistera donc dans le triage, la conservation de la perméabilité des voies respiratoires, le contrôle d'hémorragies, la prévention du choc et si nécessaire l'évacuation du patient vers un poste de soins intensifs¹.

Le triage est l'évaluation du patient afin d'obtenir les priorités de traitements. Ce procédé s'applique également dans les cas d'urgence civile et militaire. Dans ces cas-ci, une seule personne doit être en charge d'évaluer et de diriger les traitements prioritaires. Cette personne ne devrait tout de même pas faire partie de l'équipe qui confèrera les soins.

Quatre (4) considérations de base chez les patients traumatisés doivent être mentionnées:

1. Maintenir les voies aériennes perméables.
2. Contrôle d'hémorragies.
3. Prévention du choc.
4. Procéder à une évaluation sommaire du plan de traitement.

Le contact primaire avec le patient devra conduire à son évaluation générale incluant:

1. L'histoire.
2. Les signes et les symptômes.
3. L'état de conscience du patient.
4. La coloration des tissus.

5. L'évaluation de la gravité des plaies.
6. Les signes vitaux.

Il est donc important de considérer *tout* l'être humain dans son ensemble et non pas seulement la partie qui semble présenter une attention plus marquée à cause du traumatisme. Il est aussi très important de considérer les lésions associées telles les lésions abdominales ou autres.

L'établissement et le maintien des voies aériennes est de prime importance. Le patient doit constamment être surveillé, car même si au tout début les voies aériennes sont bien établies et maintenues, parfois il y a détérioration de cet état et la respiration peut devenir laborieuse et même stridente.

Les traitements dans ces cas-ci peuvent varier entre le simple nettoyage des voies aériennes jusqu'à la trachéostomie.

Le débridement et l'aspiration des sécrétions sont les façons les plus simples de procéder à l'établissement des voies aériennes normales. Il s'agit de prendre la langue et d'éliminer tous les caillots, les fragments dentaires, les fragments de prothèses dentaires et tous les objets hétéroclites pouvant se trouver à l'intérieur de la bouche. La position du patient est importante. Elle doit permettre l'évacuation des sécrétions par gravité. Il est donc important de placer le patient couché sur le côté ou encore le visage complètement à plat.

La traction sur la langue au moyen d'une suture, d'une pince à champs ou encore d'un tube endo-trachéal est indiquée.

En ce qui concerne la trachéostomie, cette intervention n'est pas une procédure simple et tous les autres moyens permettant d'établir des voies aériennes perméables doivent être utilisés avant de se résoudre à la faire.

Quant au *contrôle d'hémorragie*, des pansements compressifs peuvent être appliqués sur le visage et sur le cou et si nous considérons qu'un vaisseau majeur est ouvert, il est très facile d'appliquer une pince hémostatique pour en obtenir l'occlusion.

À ce stage, aucun effort ne doit être fait pour rétablir la continuité des tissus.

La *prévention du choc* doit aussi être faite et les facteurs suivants doivent être considérés, car ils peuvent précipiter cet état:

1. L'hémorragie.
2. La déshydratation.
3. Le traumatisme avec les effets primaires et secondaires.
4. La fatigue.
5. L'infection.
6. L'état général du patient concernant la nutrition.

Nul besoin de prolonger la discussion plus longtemps sur les signes du choc, mais toutefois, il nous faut considérer la pâleur des tissus, l'anxiété, l'apathie, la froideur de la peau, la diminution de la pression sanguine et du pouls, ainsi que la tachycardie

doivent être envisagées comme signes avant-coureurs d'un état de choc.

Le *traitement de prévention de choc* suit les signes et les symptômes cliniques de ce dernier, le positionnement du patient, la mise en marche de solution intra-veineuse, la chaleur, l'oxygène et la restauration du volume sanguin sont importants. Nous devons aussi mentionner que les médicaments vaso-presseurs peuvent être aussi utilisés pour maintenir des pressions sanguines adéquates.

La *prévention de l'infection* est de prime importance. Celle-ci est bien accomplie par le débridement léger, l'emploi des antibiotiques, ainsi que l'administration d'une thérapie antitétanique. La *douleur* n'est pas un facteur primaire dans les traumatisés du massif facial et il est à considérer que les narcotiques ne doivent pas être employés dans les cas de traumatisme facial sévère, de façon à ne pas masquer des blessures cérébrales.

Les principes généraux du traitement des fractures ne varient presque pas. Trois (3) grands principes demeurent: *la réduction, la fixation et l'immobilisation*, auxquels s'ajoutent *l'aseptie et la nutrition*. Les modalités des traitements toutefois varient. Le chirurgien doit employer les méthodes les plus simples dans chacun des cas. Les réductions fermées sont largement employées dans les cas de traumatisés, mais il faut aussi considérer que dans les cas plus complexes, les réductions ouvertes avec ostéosynthèses offrent un meilleur contrôle des fragments et permettent un meilleur confort au patient.

L'inspection et la palpation sont aussi des instruments importants de diagnostic. La palpation bi-manuelle est primordiale. Les signes et les symptômes des fractures doivent inclure l'asymétrie faciale, la malocclusion dentaire, la douleur à la palpation, la crépitation, la perte de continuité, la mobilité, le trismus, les ecchymoses, la paresthésie, l'hémorragie sous-conjonctivale, la diplopie, la rhinorrhée, l'otorrhée et le signe de "Battle" ou ecchymose rétro-auriculaire.

Dans le traitement des fractures de la face, il faut toujours se rapporter à l'anatomie de base de cette région du corps humain. Il faut considérer que dans cette région, la nature a pu s'organiser de façon à établir des lignes de défense assez admirables, concernant les structures vitales, tels les yeux et le contenu cérébral. L'architecture du tiers moyen de la face prédispose à un déplacement des diverses lignes de suture, telles zygomatoc-temporales, zygomatoc-frontales, zygomatoc-maxillaires et fronto-nasales. Ces mécanismes de défense réduisent de beaucoup la morbidité, la mortalité et les troubles oculaires et crâniens.

L'architecture osseuse nous guide sur les divers principes du traitement des fractures.

Ainsi pour cette raison, l'immobilisation par fixation inter-maxillaire est impérative pour le traitement de toutes les fractures de la face, sauf les véritables fractures par effondrement du plancher de l'orbite et les fractures nasales.²

Les réquisitions pour *évaluation radiologique* doivent être faites seulement en se basant sur un excellent examen clinique. À cet effet, des films spécifiques et spéciaux peuvent être demandés et ceux-ci sont:

1. Les os propres du nez:
 - a) la vue de Water.
 - b) la vue latérale du nez.
2. L'arche zygomatique:
 - a) la vue de Water du maxillaire.
 - b) la projection sous-mentonnaire.
3. Le complexe zygomatoc-maxillaire:
 - a) la vue de Water.
 - b) la vue sous-maxillaire.
4. Le tiers moyen de la face:
 - a) la vue de Water.
 - b) la vue sous-mentonnaire.
 - c) la projection latérale du nez.
 - d) la projection postéro-antérieure.
 - e) une latérale franche du visage.
5. L'étude panoramique des maxillaires.
6. L'étude par coupes tomographiques de certaines structures.

Il est impératif de mentionner le traitement des fractures du massif facial, en autant que l'état général doit s'établir le plus rapidement possible.

Les lacerations des tissus mous doivent provoquer une attention toute spéciale et le remplacement des tissus en position anatomique normale est impératif.

Les périodes d'immobilisation varieront suivant la sévérité des fractures traitées, l'âge du patient et son état général. Tous les traitements des fractures du massif facial sont faits de façon à obtenir une apparence clinique fonctionnelle et esthétique le plus près possible de la normale.³

TRAITEMENTS DES FRACTURES DE LA FACE

1. Fractures du Nez:

Nul besoin de mentionner que la proéminence de cette partie du massif facial prédispose à des traumatismes directs, isolés ou indirects. Les fractures dans cette région peuvent être soit simples ou composées.

Les fractures composées peuvent s'étendre dans les sinus frontaux et endommager la lame criblée de l'ethmoïde, ainsi que la fosse crânienne antérieure, avec les résultats concomitants que nous connaissons. Ces fractures ont sérieuses mais ne sont pas dangereuses. Toutefois, le repositionnement des fragments, ainsi que l'immobilisation adéquate devront rétablir un esthétique normal, ainsi qu'un fonctionnel adéquat. Les fractures du nez peuvent endommager un ou plusieurs os adjacents.

Ces os sont les os propres du nez eux-mêmes, la branche montante du maxillaire supérieur, les os frontaux, l'os lacrymal et l'os ethmoïde. La fracture de l'épine nasale peut être très douloureuse et causer un dommage préjudice esthétique au patient, mais pas sérieuse.

Tout dépendant de la direction, de la vélocité et de l'intensité de la force qui a causé l'impact, nous pouvons considérer qu'il existera autant de possibilités de déplacement de cette région. Les forces latérales causeront une fracture unilatérale avec un déplacement médial ou encore un déplacement bilatéral du nez du côté opposé.

Les fractures et déplacements peuvent être aussi causés par un traumatisme direct qui est associé avec une fracture LeFort III.

Il est donc très important de bien évaluer, malgré l'oedème, la douleur et les signes associés à toutes régions du massif facial à la suite d'un traumatisme. L'histoire clinique déterminera très souvent l'étendue du dommage causé par l'impact et même sans avoir vu les radiographies, il est assez facile de voir à l'occasion l'étendue du dommage.

L'examen clinique devient donc de prime importance. L'examen manuel révélera l'hypermobilité des fragments, mais aussi il ne faut pas oublier de regarder à l'intérieur des fosses nasales, pour pouvoir évaluer l'étendue des blessures dans cette région et aussi pouvoir à l'occasion enlever des corps étrangers qui s'y seraient logés. Enfin, l'examen radiologique du patient est indiqué et vient compléter l'évaluation.

Les fractures nasales sont traitées tant par l'otorhino-laryngologiste que le chirurgien buccal, mais il est important que ce dernier puisse avoir accès à ces patients, car très souvent il sera contraint à les traiter soit de façon isolée, ou encore concomitamment à un traumatisme facial plus marqué. Ces fractures devront être réduites le plus tôt possible, après le traumatisme et surtout avant que l'oedème ne s'établisse. Très souvent, l'élévation et le repositionnement des fragments concernés avec une immobilisation plâtrée ou autre seront suffisants.

La réduction peut être faite manuellement ou encore avec des instruments tels que les forceps de Kelly, ou encore un élévateur sous-muqueux, soit en employant une traction lente sur les fragments ou encore par manipulation en même temps que traction des divers fragments intéressés.

La plupart des fractures nasales nécessiteront un support intra-nasal, de façon à établir une bonne hémostase, ainsi qu'une bonne immobilisation. À cause de l'oedème et la difficulté de maintenir les voies respiratoires perméables, nous sommes obligés de placer dans les fosses nasales des tubes de caoutchouc genre Bardex, de façon à les maintenir perméables. Si un saignement très prononcé est noté, il aura lieu de procéder

à la mise en place d'un tube de Foley gonflé, ou encore de tout autre appareil pouvant servir à faire de la compression à la partie postérieure des fosses nasales. Ces appareils pourront demeurer en place environ soixante-douze heures.

À l'occasion, il aura lieu de placer un appareil plâtré en surface externe du nez.

Les complications pouvant découler des fractures sont l'épistaxis, un abcès de la paroi septale, un hématome, un oedème massif, une infection et de la rhinorrhée.

2. Fractures de l'Arcade Zygomatique:

Les fractures de l'arcade zygomatique sont des fractures simples, surtout si elles sont uniques.

Très souvent, plusieurs de ces fractures n'ont pas besoin de réduction. Dans d'autres cas, à cause de l'oedème présent dans la région, la difformité qui est présente est marquée. Le patient reviendra dans deux ou trois semaines par la suite, se plaignant de difficultés à ouvrir la bouche et ceci dû au fait que l'arcade vient en contact direct avec l'apophyse coronoïde du maxillaire inférieur et les mouvements sont ainsi réduits.

L'histoire clinique de ces fractures est un traumatisme direct en position latérale et une hémorragie sous-conjonctivale subséquente. Il existe un pincement de la peau dans cette région, avec difficulté des mouvements d'ouverture du maxillaire inférieur ainsi que des mouvements de latéralité de ce dernier.

L'instrument le plus facile et le plus employé pour diagnostiquer ces fractures est encore la radiographie. La position de choix est celle obtenue par la voie mentionnée. Plusieurs de ces fractures demeurent "en bois vert" et l'élévation de celle-ci rétablit la continuité des fragments. Cette élévation peut se faire par voie temporale ou encore plus facilement par voie intra-buccale et l'anatomie des fragments peut être établie de façon assez facile. Les fractures qui sont très déplacées devront être corrigées par réduction ouverte et une tige métallique intra-osseuse peut être placée pour servir de point d'ancrage pour une immobilisation plus permanente. Il est aussi à considérer que parfois un appareil péri-crânien devrait être utilisé pour traiter ce genre de fracture.

Il faut toutefois considérer que les complications de ces fractures de l'arcade zygomatique sont assez rares. Toutefois, s'il venait à se présenter qu'un patient ne puisse ouvrir ou fermer le maxillaire inférieur de façon normale secondairement à une de ces fractures, on doit à l'occasion procéder à l'ablation de l'apophyse coronoïde, de façon à pouvoir obtenir les mouvements normaux du maxillaire.

3. Fractures Complexes Maxillo-Zygomatiques:

L'os malaire ou zygomatique est pour la plupart du temps impliqué dans les fractures ou traumatismes du visage. Les sites des fractures intéressant cet os seront surtout aux sutures zygomato-frontales, zygomato-maxillaires et à la naissance de l'arcade zygomatique. La fracture la plus fréquemment rencontrée est celle que nous voyons à la suture zygomato-maxillaire, intéressant la partie inférieure du plancher de l'orbite. Ces fractures passent très souvent par le plancher de l'orbite, ainsi que la paroi antérieure du sinus maxillaire.

Il faut, en examinant l'anatomie de cette région, constater que si nous poursuivons un trait de fracture en partance de la paroi antérieure du complexe sus-orbitaire et en s'étendant par le plancher de l'orbite, nous pouvons établir un autre point très faible à la suture zygomato-malaire et habituellement celle-ci cédera.⁴

Comme il y a deux points de pivotement, il est assez impératif d'obtenir un autre trait de fracture à la région de l'arcade zygomatique. De cette façon, nous obtenons quasi constamment une fracture tripoïde et un affaissement de cette structure osseuse se produira. Lors des fractures dans cette région, une attention très particulière devra être placée sur les muscles extra-oculaires et les tissus péri-orbitaires. Le véritable effondrement du plancher de l'orbite peut laisser le rebord orbitaire inférieur intact, mais tout le contenu des tissus péri-orbitaires descendra dans le sinus maxillaire, pour produire une hernie.

Ces patients devront être vus avec l'ophthalmologiste et traités suivant les dispositions physiques qu'offre l'équipe chirurgicale déjà établie. Il est à noter que dans la fracture avec effondrement du plancher de l'orbite totale, très rarement, il existe une lésion au globe oculaire lui-même.

Dans les cas de doute d'effondrement du plancher de l'orbite, nous sommes toujours justifiés d'explorer cette région et s'il y a effondrement, remonter les tissus à leur position normale et placer un obturateur dans la brèche créée au plancher de l'orbite après avoir évacué les fragments osseux du sinus. Les complications lointaines de ce genre de fracture seront la diplopie, l'énophthalmie et la dacryocystite.

Le traitement des fractures, tant simples que complexes, de cette région varie beaucoup. Les fractures non compliquées se traitent par élévation, des impactions de l'os mais, habituellement, celui-ci se maintient en position anatomique normale sans aucun traitement.

S'il existe beaucoup de discontinuité entre les fragments, des ostéosynthèses à la suture fronto-malaire et zygomato-

maxillaire devront être faites et parfois aussi une approche sinusale devra être faite, de façon à placer à l'intérieur du sinus soit des mèches vaselinées, ou encore une sonde Foley gonflée, de façon à maintenir la position anatomique normale de cet os et pouvoir établir un niveau oculaire normal, de même qu'établir ou rétablir aussi la fonctionnel oculaire normal. L'approche chirurgicale pourra être encore la voie sous-orbitaire et tout en faisant une ostéosynthèse dans cette région, l'exploration du plancher de l'orbite pourra être faite et les traitements appropriés conférés tels que déjà mentionné.

À l'occasion, lors d'un traumatisme facial sévère ou pour d'autres raisons, un appareil péri-crânien devra être utilisé. On pourra se servir de tiges métalliques implantées dans l'os et reliées à un appareil péri-crânien, de façon à stabiliser les fragments et les immobiliser en position anatomique normale. Pour reformer et reconstituer le plancher de l'orbite, divers matériaux peuvent être utilisés. Nous employons très souvent le silastic en feuilles très minces ou encore dans les cas de brèche géante il y aura lieu d'appliquer une greffe osseuse qui très souvent pourra servir de recontournement des tissus osseux et reformer en même temps un soufflage de la région, de façon à obtenir un consensus esthétique plus normal.

Le ballon sinusal qui est utilisé à l'occasion devra être laissé entre sept à dix jours en place, de façon à ce que la fibrose puisse s'établir normalement entre les divers fragments et maintenir la position anatomique de l'os.

Il y aura par la suite lieu de contrôler avec des radiographies le niveau des diverses structures osseuses et suivre le patient avec divers examens ophtalmologiques, tel qu'indiqué.

4. Fractures du Maxillaire Inférieur:

a) la réduction des fractures:

Généralement, le maxillaire inférieur se fracture à deux endroits, soit à la région antérieure d'un côté et postérieure du côté opposé et/ou au col du condyle ou à l'angle. Il arrive aussi fréquemment que des fractures antérieures centrales et bilatérales se produisent.

Les fractures des arcades dentaires portant des dents sur chacun des fragments n'apportent pas de problème, puisque les deux fragments peuvent avoir un point d'appui sur le maxillaire opposé. Les fractures sur lesquelles un fragment ne présente pas de dents nécessitent une ostéosynthèse. Ces ostéosyntheses ont une valeur réelle quant à l'alignement et au contact osseux des fragments, mais par contre, elles n'ont pas beaucoup de valeur sur l'angulation qui devra être maintenue par l'immobilisation

des deux maxillaires. Au niveau du maxillaire inférieur, le jeu musculaire est considérable et le site de l'ostéosynthèse sera justifié par la région et le genre de fracture rencontrée.⁵

b) l'immobilisation:

Les fils métalliques inter-dentaires sont un moyen conventionnel d'immobilisation. Il en est ainsi pour les arches pré-fabriquées qui sont fixées à chaque maxillaire. Ces arches ont des crochets multiples pouvant permettre une traction et une immobilisation par des simples bandes élastiques inter-maxillaires. Ces appareils sont préférables en cas d'urgence, tel que troubles respiratoires ou vomissements, parce que les élastiques peuvent être coupés facilement et remplacés plus tard sans difficulté.

Chez les édentés, l'immobilisation se fait au moyen d'une prothèse dentaire modifiée attachée au maxillaire. C'est pourquoi les prothèses, même si elles sont multifracturées lors d'un traumatisme, doivent toujours suivre le patient.

Certains cas complexes nécessitent des tiges métalliques externes et doivent être immobilisés au moyen d'appareils péri-crâniens ou autres.

Il est à noter que les broches osseuses intra-médullaires sont complètement contre-indiquées au maxillaire inférieur.

5. Fractures du Massif Facial:

Quand le maxillaire inférieur est bien réduit et que ce dernier est immobilisé à la boîte crânienne, la reconstruction du tiers moyen est envisagée. Dans les cas de fractures multiples du massif facial, il faut avoir pour objectifs:

1. de rétablir la ligne verticale médiane du visage, c'est-à-dire la ligne passant de la racine du nez, la pointe du nez, le frein de la lèvre supérieure, les dents centrales des maxillaires supérieur et inférieur, enfin la dépression de la symphyse mentonnière.
2. de reconstruire le plan antéro-postérieur des deux maxillaires, la pyramide faciale et les deux os malaïres.
3. de redonner le plan horizontal des angles du maxillaire inférieur, de l'occlusion dentaire, des commissures labiales, des canthus palpébraux internes et externes.

La reconstruction faciale doit se faire de bas en haut en se servant du maxillaire inférieur, comme base sur lequel on peut reconstruire toute la pyramide faciale de chaque côté. Quand le maxillaire inférieur est bien réduit et que ce dernier est immobilisé à la boîte crânienne, le massif facial et les différentes reconstructions sont envisagées. Il est à noter que la reconstruction s'établira en partance de l'intermédiaire du système dentaire, qui donnera la base de l'articulation et du repositionnement des fragments, car l'équilibration de l'occlusion dentaire se

fait au millimètre près et sert de guide constant pour ces fractures.⁴

Si l'on considère maintenant l'os malaïre et s'il est enclavé, il est dégagé et réduit par la technique appropriée.

La pyramide faciale elle aussi, si elle est enfoncée et enclavée, devra être désimpaguetée jusqu'à ce que les fragments deviennent mobiles et libres. Les régions fronto-orbito-nasales sont aussi à surveiller, pour qu'il n'y ait pas de superposition des fragments, ni dans les régions nasales, ni dans les régions de la cavité orbitaire.

Maintenant que tous les os du massif facial sont libres, nous pouvons songer à l'immobilisation. Les os malaïres sont immobilisés en position anatomique normale telle que décrite et le maxillaire supérieur est immobilisé adéquatement au maxillaire inférieur.

La hauteur verticale et le plan d'occlusion sont déterminés et le tout immobilisé à la boîte crânienne. La région fronto-orbito-nasale est réduite pour empêcher ou réduire l'hypertolérisme, ainsi que le repositionnement du canthus interne et des os propres du nez et l'immobilisation en position normale par broches trans-nasales reliées à des plaques ou boutons péri-nasaux, maintenant en bonne place les ligaments palpébraux internes par contention des fragments osseux.

À ce niveau, la position des globes oculaires est examinée et s'il y a un doute de fracture ou d'enfoncement du plancher de l'orbite, une exploration par voie sinusale et externe sera faite. S'il y a lieu, un support intra-nasal ou une prothèse sous-périostée intra-orbitaire est placée.

Classiquement, les fractures du massif facial ont été décrites dans la littérature par Lefort en 1900. Trois classifications ont été données, soit Lefort I, Lefort II et Lefort III, suivant que les fractures intéressent en tout ou en partie les os propres du visage. Il faut toutefois remarquer que la classification de ces fractures peut amener plusieurs composantes et la phraséologie à appliquer dans ces fractures ne détermine pas toujours l'étendue de toutes les composantes impliquées.

Conclusion

Dans les cas de traumatisme facial, il est important de considérer:

1. Le système respiratoire.
2. La rapidité avec laquelle les réparations sont faites déterminera très souvent le résultat des interventions.
3. Plus le maxillaire inférieur est réduit rapidement et immobilisé, moins le patient aura de problèmes à éliminer ses sécrétions et évitera ainsi les complications pulmonaires.
4. Dans les cas de multi-fractures du massif facial, il est à considérer que très souvent l'on devra se servir d'appareil de contention externe et dans ces cas-ci, l'appareil du

docteur André Charest est de prime importance pour la contention et l'immobilisation des fractures aux divers niveaux du massif facial et pour le bon fonctionnement des os en cause.⁶

Résumé

Le traumatisme buccal et maxillo-facial est une entité spécifique pour un chirurgien buccal et nécessite une évaluation précise.

Cet article tente de résumer les divers points d'évaluation de ces patients, pour permettre d'établir le plan de traitement le mieux adapté à la condition, de façon à acheminer le traitement global requis.

Summary

The authors have tried to describe the evaluation, diagnosis and plan of treatment involved in the trauma of the facial skeleton.

This article must be considered as a basic evaluation outline of these patients and shows the fundamental care. The dentist must be aware of his participation in a trauma team.

Le docteur Guy Maranda est membre au service de chirurgie buccale et maxillo-faciale de l'hôpital de l'Enfant-Jésus de Québec et professeur-adjoint au département de chirurgie buccale et maxillo-faciale de l'École de médecine dentaire de l'Université Laval de Québec.

Le docteur André Charest est chef du service de chirurgie buccale et maxillo-faciale de l'hôpital de l'Enfant-Jésus de Québec, directeur du programme gradué de chirurgie buccale et maxillo-faciale de l'École de médecine dentaire de l'Université Laval et professeur-adjoint.

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Pour demande de tirés-à-part:

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Announcements

JANUARY/JANVIER 1986

January 13-15, 1986: The National Institutes of Health in cooperation with the National Cancer Institute and the National Institute of Dental Research are planning a Consensus Development Conference on the Health Implications of Smokeless Tobacco Use. To be held at National Institute of Health headquarters, Bethesda, Maryland. Contact: Barbara McChesney, Prospect Associates, Suite 401, 2115 East Jefferson Street, Rockville, Maryland, 20852, 301-468-6555.

January 16-19, 1986 — Yankee Dental Congress 11th Annual Meeting, Boston, Mass. "Prescription for Excellence." For information: Massachusetts Dental Society, 36 Washington Street, Wellesley Hills, MA 02181. Telephone: (617) 237-6511.

January 18-25, 1986: Hawaii Dental Congress, Honolulu, Hawaii. Contact: Conference Travel of Canada, Inc., 102 Bloor St. W., Suite 620, Toronto, Ont. M5S 1M8. Toll Free 1-800-387-1488.

January 27-February 1, 1986: A meeting on the state of the art in orthodontic diagnoses and treatment planning, entitled "Kieferorthopädische Fortbildungstagung in Kitzbuhel" is being held in Kitzbuhel, Austria. Contact: The meeting secretariat, A-6370 Kitzbuhel, Webergasse 17, Austria.

January 30-February 2, 1986: HealthCom '86, Las Vegas, Nevada, Las Vegas Convention Centre. Highlights computer, telecommunications and information systems specifically for the healthcare industry. Contact: Lin Fish/Pete Soraparu, Fleishman Communications Inc. 312-397-7744.

FEBRUARY/FÉVRIER 1986

February 14, 1986: Academy of Dental Materials — Continuing education course on "Titanium", the new alloying element in dentistry. Northwestern University Dental School, 311 East Chicago Avenue, Chicago ILL 60611. Contact: Sybil Greener.

Telephone (312) 943-8410. Immediately precedes Chicago Midwinter Meeting.

February 16-19, 1986: 121st Chicago Midwinter Meeting, Chicago Hilton and Towers, Chicago Illinois. Theme is "New Horizons." Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Illinois, 60602, 312-726-4076.

February 28-March 2, 1986: Myotronics Research is presenting a three day seminar on "Neuromuscular Status: The Missing Orthodontic Dimension" in San Diego, California: Principle speaker will be Dr. Yoshitaka Ogata. Contact: Merry Ashley, Myotronics Research, 1-800-426-0316 for information.

MARCH/MARS 1986

March 2-5, 1986, College of Dental Surgeons of British Columbia, Convention — "Dentistry in Motion" — at Hotel Vancouver. For Information, write to: Dr. Ken Neuman, College of Dental Surgeons of B.C. 1125 West Eighth Avenue, Vancouver, B.C. V6H 3N4.

March 5-8, 1986: Western Canada Dental Society Curling Bonspiel, Vancouver, B.C. Contact: Dr Elgin Duke, 10340-134 A St. Surrey, B.C., V3T 4B8, 604-585-3177.

March 16-20 1986: The International Orthodontic Conference, Sheraton Rotorua Hotel, Rotorua, New Zealand. Contact: Ron Roberts, Air New Zealand, 151 Bloor St. West, Suite 340, Toronto, Ont. M5S 1S4.

APRIL/AVRIL 1986

April 3-6, 1986: World Congress VIII for Oral Implantology, Macutosherton Hotel, Caracas, Venezuela, South America. Contact: Margaret Jackson, Executive Director ICOI, P.O. Box 2277, Grand Central Station, New York, New York, 10163, 201-783-6300.

April 6-9, 1986: International Rehabilitation Week, includes a conference and exhibition at the New York Convention

Centre, New York City. Contact: EJJ Management Inc., 225 West 34th St. Suite 905, New York, NY. 10122, 212-563-5461.

April 7-12 1986: 23rd International Dental Show and German Dentists' conference in Cologne, Germany. Contact: Messe-und Ausstellunge-Ges. m.b.h. Koln, Messeplatz, Postfach 210760, D-5000 Koln 21 (Deutz) West Germany.

MAY/MAI 1986

May to October 1986: Vancouver and District Dental Society in conjunction with the Inter-Specialty Dental Society of British Columbia will be presenting multidisciplinary seminars, endorsed by the College of Dental Surgeons of British Columbia, from May through October 1986 to coincide with Expo '86. Limited Attendance. Inquire early by contacting Susan Ryan, c/o Vancouver and District Dental Society, 1125 West 8th Avenue, Vancouver, B.C. V6H 3N4.

May 1-4, 1986: Alabama Implant Congress XII, Birmingham, Alabama. Contact: The Alabama Implant Study Group, P.O. Box 4682, Birmingham, Alabama, 35206, 205-836-2211.

May 2-4, 1986: The 2nd International Symposium on Periodontics and Restorative Dentistry. Westin Hotel, Boston Mass. Sponsored by Quintessence Publishing Co. Inc. Contact: Quintessence Publishing Co. Inc. 8 South Michigan Ave. Chicago Ill. 60603 312-782-3221.

May 11-14, 1986: Ontario Dental Association 119th Annual Spring Session. The Sheraton Centre Hotel, Toronto. Contact: Diana Thorneycroft, 234 St. George St., Toronto, Ontario, M5R 2P1.

May 21-23, 1986: International Life Sciences Institute, Symposium on Sweetness. International Conference Centre of Geneva, Switzerland. Contact: Symposium Secretariat, Conference Associates ILSI, 27A Medway Street, Westminster, London SW1P 2BD, England.

May 21-23, 1986: **Expodent 1986 Trade Fair and Congress for Present Day Dentistry and Dental Technology**. Utrecht, Holland. Contact: Royal Netherlands Industries Fair, Postbus 8500, 3503 RM, Utrecht Holland.

May 23-26, 1986: **The 34th Annual Fitzgerald Dental Radiology Workshop** will be held at the Delta Mountain Inn, Whistler, B.C. Contact: Dr. O.F. Wright, #330-5655 Cambie St. Vancouver, B.C. V5Z 3A4, 604-261-8021.

May 25-29, 1986: **Journées Dentaires du Québec**. Palais des Congrès de Montréal, Québec. Pour informations, communiquer avec le docteur Michel Jahjah, président du Conseil de gestion des Journées dentaires, 625 boul. Dorchester ouest, 5^e étage, Montréal, Québec H3B 1R2, Tél: 514-875-8511.

JUNE/JUIN 1986

June 26-29, 1986: **10th International Symposium on Dental Hygiene**. Oslo, Norway. Scandinavia Hotel. Contact: The Scientific Committee, 10th International Symposium on Dental Hygiene, P.O. Box 438, 1301 Sandvika, Norway. For more information contact either Inger-Lise

Bryhni or Elisabeth Olsen Kolbjornsen at the above address.

June 30-July 4: **The 8th Congress of the International Association of Dentistry for the Handicapped**, Bergen Norway. Contact: Dr. Marit Moland, Helsm Vei 19, 5032 Minde Norway.

JULY/JUILLET 1986

July 1, 1986: Applications are being accepted for the **Postdoctoral program, Dental Diagnostic Science at the University of Texas**, Health Science Center at San Antonio for the class beginning **July 1, 1986**. Address inquiries to: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Centre at San Antonio, 7703 Floyd Curl Dr., San Antonio TX. 78284.

July 6-11, 1986: **The World Dental Conference, Jerusalem, Israel**. Deadline for submission of Abstracts: **March 15, 1986**. Contact: Rifka Boruchowicz or Dalia Raif, convention co-ordinators, Diamond International Tours Inc, 1183 Finch Avenue, Suite 203, Downsview, Ontario. M3J 2G2, 416-663-9100.

AUGUST/AOÛT 1986

August 24-27, 1986: **Canadian Dental Association Annual Convention**. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

August 25-29, 1986: **Biennial Conference of the New Zealand Dental Association**, Wellington New Zealand. Contact: Conference Secretary, New Zealand Dental Association, P.O. Box 3709, Wellington, New Zealand.

SEPTEMBER/SEPTEMBRE

September 24-28, 1986: **Canadian Academy of Endodontics, Annual meeting** Vancouver, B.C. Four Seasons Hotel. Contact: Dr. S.K. Sinanan, 925 West Georgia St., Suite 1015, Vancouver, B.C. V6C 1R5, 604-669-2364.

September 25-27, 1986: **38th Annual New Orleans Dental Conference**, New Orleans Hilton Hotel, New Orleans Louisiana. Theme of the Conference is "Recipes for Success '86'". Contact: New Orleans Dental Conference, 3101 West Napoleon Avenue, Suite 119, Metairie LA. 7001, 504-834-6449.



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area of city. Thirteen year old practice. Excellent potential. Goodwill, owner's equipment and real estate share. Owner returning to grad school. Call or write: Dr. Paul O'Brien, P.O. Box 9503, St. John's, Nfld. A1A 2Y4 Telephone (709) 726-6951 (B) or (709) 753-0853 (R).

ASSOCIATESHIP AVAILABLE

BRITISH COLUMBIA—Phenomenal practice growth necessitates a 3rd full time dentist in a new shopping mall in Victoria, B.C. Association with view to partnership for dynamic, energetic dentist. Please reply to CDA Box No. 2298.

BRITISH COLUMBIA—Partnership in Excellence—Do you possess expertise in any one of the following areas: T.M.J., Orthodontics, Periodontics, Reconstructive Dentistry or Oral Medicine? Would you be an easy going, discriminating partner? Can you work effectively with an enthusiastic and talented staff? Are you willing to relocate in a city known for its special energy and unique quality of life? Contact Dr. Jack DeGruchy at (604) 860-1414 office or (604) 763-6106 residence.

BRITISH COLUMBIA—Vancouver (Lower Mainland). Full time Associate position available in busy family practice in busy modern retail Shopping Mall. Fully equipped, panelipse, automatic developer, etc. Contact: Dr. A.S.K. Li, 201-5066 Kingsway, Vancouver, B.C. V5H 2G7. Phone (604) 457-4427.

ALBERTA—Available now: Our Active General Practice is expanding. We require an Associate to work on a Cubic Day basis and to keep the practice active while the owner is fulfilling outside commitments. Interested persons please reply to: Robert D. Kinniburgh DDS. 201 - 542 - 7th Street S., Lethbridge, Alberta T1J 2H1 or Ph: 1-(403)-320-5101.

NORTHERN ALBERTA—Associate Wanted. Full time position in a busy practice in Northern Alberta. Modern three operator practice with part time hygienist and thriving satellite clinic. A family oriented community with daily flights from Edmonton and excellent recreational facilities.

Please contact Dr. James Tennant (403) 874-6663/6798.

SASKATCHEWAN—Excellent opportunity for Associateship or Partnership in busy family practice, located in fully serviced community of 5,000 in forest and lake area. Owner wishes more time for outreach work. Phone Dr. Phillips at 306-862-9166 (Bus.) or 306-862-5261 (Res.).

SASKATCHEWAN—Saskatoon: ³/₄-time Associate required for busy, growing dental office. Regular and extended office hours. Definite full-time possibility. Salary negotiable. Please call 306-384-7191.

ONTARIO—Toronto. Associate required for patient oriented quality group general practice. Experience preferred. Please reply to CDA Box No. 2283.

SOUTHWESTERN ONTARIO—Associateship Available. Oral and Maxillofacial Surgeon wanted to join my busy practice. Excellent opportunity for the right person. Please reply to CDA Box No. 2300.

OPPORTUNITIES AVAILABLE

BRITISH COLUMBIA—Vancouver. *Wanted* — Marketing conscious dentist for challenging position in progressive dental office. Central Vancouver location. Please reply to CDA Box No. 2305.

BRITISH COLUMBIA—Vancouver. Well organized, experienced dentist required for a busy practice. We are located in a large shopping mall, 35 minutes from downtown Vancouver. Phone Rakel et (604) 530-2936 or (604) 530-4011.

ALBERTA—Dentists, preferably with two years experience, required immediately to take over full patient load for group practice in Edmonton's West End. Gross earning approximately \$25,000 per month. Please send confidential resume to CDA Box No. 2301.

ALBERTA—Periodontist Wanted—A group of Dental Specialists (Endodontist, Orthodontist, and Pedodontist) are looking for a Periodontist to join them in a Dental Specialist Building. There is not a full-time Periodontist in the area. We service a drawing area of 100,000 – 150,000 people, extending from the B.C. Border to the Sask. border. Please contact Drs. Campbell, Clements, or Cram at (403) 342-5565, or write to 280, 5201 – 43 Street, Red Deer, Alberta T4N 1C7.

SASKATCHEWAN—Practice Opportunity. Space is available in a Health Centre housing ten physicians. An excellent opportunity to establish a practice which should grow quickly. Reply in confidence to CDA Box No. 2300.

SASKATCHEWAN—Porcupine Plain, a thriving community of 1000 and located in the Northeast Parkland of Saskatchewan, requires a dentist. We are located 50 miles from the next larger trading center in an excellent hunting and fishing area. Space for a clinic is available and incentives may be arranged. For further information contact: Barry Warsylewicz, Administrator, Town of Porcupine Plain, Porcupine Plain, Sask. S0E 1H0 or phone (306) 278-2262.

SASKATCHEWAN—Saskatoon. Excellent opportunity for established dentists or new graduates for Associate positions or owner operator positions in high profile clinic in exciting new mall in Saskatoon. Please reply to CDA Box No. 2303.

MANITOBA—Dentist Required for Swampy Cree Tribal Council Dental Program. A Salaried position providing dental services to six Northern Manitoba communities. Headquarters located at The Pas, Manitoba. Extensive travel, modern portable equipment, expanded duty auxillary. Send resume to Mr. P. Dorion, S.C.T.C. Executive Director, P.O. Box 150, The Pas, Manitoba R9A 1K2 or phone 1-204-623-3423, attention Mrs. Florence Constant.

ONTARIO—Dentist, General Practitioner or recent graduate, with orthodontic interest required to assist in a busy orthodontic practice 2 – 4 days per week. Please apply to CDA Box No. 2299. Resume to include grade rankings, personal goals and references.

QUEBEC—Ville St-Laurent. Dentist required with own patients, to rent space or work with percentage. Two operating rooms. Call: Dr. Denis Barrette, 1530 ch. Côte Vertu, Ville St-Laurent, Qué. H4L 1Z8 Tel: (514) 336-6464.

QUEBEC—Ville St-Laurent. Dentiste recherché(e) ayant sa propre clientèle, à loyer ou à pourcentage. Deux salles opératoires. Appeler: Dr Denis Barrette, 1530 ch. Côte Vertu, Ville St-Laurent, Qué. H4L 1Z8 Tél: (514) 336-6464.

QUEBEC—Westmount. Dental Hygienist wanted three days per week for a Westmount preventive oriented adult practice starting January 6, 1986. Hours 7:30 to 2:30. Please send written resume to Kelcor,

4695 Sherbrooke Street W., Westmount, Québec H3Z 1G2.

OPPORTUNITIES WANTED

BRITISH COLUMBIA—Full time experienced general practitioner seeking associate position in Vancouver area. Interested in all aspects of dentistry, with extensive experience in dealing with apprehensive patients. Immediate start if necessary. Please write to CDA Box No. 2296.

BRITISH COLUMBIA—Victoria. Dentist interested in an Associateship leading to Partnership, or possibility of purchasing a well-established practice in Victoria, B.C. Please reply to CDA Box No. 2304.

OPPORTUNITY — Oral and Maxifacial Surgeon with some experience desires associateship in an established and progressive practice. Willing to do further board examinations if necessary for licensure. Please reply to CDA Box No. 2294.

ONTARIO—Locum/Associate available in Ontario from September 1986 for one year. 1980 Graduate, bilingual, with 5 years Hospital Dentistry experience, returning from 3 years in a Mission Clinic in Africa. Contact: Dr. Brian Eckert, Mlambe Hospital, P.O. Box 45, Lunzu, Malawi, AFRICA.

QUEBEC—Montreal. Young, conscientious dentist, McGill graduate with one year hospital internship, wishes to buy busy family oriented preventive practice or seeks affiliation with dentist planning semi or permanent retirement. Have strong preference for Montreal, but would consider Ottawa or Toronto. Please reply to CDA Box No. 2302.

MISCELLANEOUS

ONTARIO—Space available to rent for Orthodontists, Oral Surgeons or Prosthodontists in Specialist Office in Brampton, Ontario (Toronto vicinity). Call (416) 967-1117.

VACATION RENTALS

BRITISH COLUMBIA—Ski. Big white ski village, ski from the door. Two storey luxury condominium with sauna, satellite television, fireplace, all amenities, sleeps eight. \$150. per night. Contact Dr. Jack Degruy, 205 Capri Centre, Kelowna, B.C. V1Y 3H5 or telephone (604) 860-1414 attention Lane Agee.

THE UNIVERSITY OF MANITOBA FACULTY OF DENTISTRY

The Department of Rehabilitative Dental Science offers a term appointment at the Assistant or Associate Professorial level. Teaching responsibilities will be primarily, but not exclusively, within the Section of Removable Prosthodontics.

A research commitment is anticipated and an opportunity exists for the provision of patient care at an advanced level.

Graduate training in an accredited program is required and experience in general practice highly desirable.

Eligibility for licensure in Manitoba is required.

In accordance with Canadian Immigration requirements, priority will be given to Canadian Citizens and permanent residents. Applications are invited from both males and females.

Applications should be directed (accompanied by references and C.V.) to:

Dr. Justin A. McCarthy, Head
Department of Rehabilitative Dental Science
Faculty of Dentistry
University of Manitoba
780 Bannatyne Avenue
Winnipeg, Manitoba R3E 0W3
Telephone #: (204) 786-3664

THE UNIVERSITY OF MANITOBA FACULTY OF DENTISTRY

The Department of Rehabilitative Dental Science offers a term appointment at the Assistant or Associate Professorial level. Teaching responsibilities will be primarily, but not exclusively, within the Sections of Operative Dentistry and Fixed Prosthodontics.

A research commitment is anticipated and an opportunity exists for the provision of patient care at an advanced level.

Graduate training in a related area is required and experience in general practice highly desirable.

Eligibility for licensure in Manitoba is required.

In accordance with Canadian Immigration requirements, priority will be given to Canadian Citizens and permanent residents. Applications are invited from both males and females.

Applications should be directed (accompanied by references and C.V.) to:

Dr. Justin A. McCarthy, Head
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Faculty of Dentistry
University of Manitoba
780 Bannatyne Avenue
Winnipeg, Manitoba R3E 0W3
Telephone #: (204) 786-3664

THE UNIVERSITY OF MANITOBA FACULTY OF DENTISTRY SECTION OF ENDODONTICS

The Department of Rehabilitative Dental Science offers a term appointment at the Assistant or Associate Professorial level. Board Certification or eligibility is required and experience in general practice is desirable.

Responsibilities would include undergraduate teaching, research and clinical practice.

Eligibility for licensure in Manitoba is required.

In accordance with Canadian Immigration requirements, priority will be given to Canadian Citizens and permanent residents. Applications are invited from both males and females.

Further inquiries and applications (accompanied by references and C.V.) should be directed to:

Dr. Justin A. McCarthy, Head
Department of Rehabilitative Dental
Science
Faculty of Dentistry,
University of Manitoba
780 Bannatyne Avenue
Winnipeg, Manitoba R3E 0W3
Telephone #: (204) 786-3664

DALHOUSIE UNIVERSITY FACULTY OF DENTISTRY DIVISION OF PERIODONTICS

Two positions will shortly become available with the Division of Periodontics

DIRECTOR OF POST-GRADUATE PERIODONTICS

The successful applicant will have completed accredited graduate education in Periodontics, have significant experience in administration and research and, ideally, a Ph.D. in a related area. Responsibilities include administration of the Post-Graduate Periodontics Program and related teaching, some undergraduate teaching and continuing education and the furthering of research in Periodontology within the Faculty

ASSISTANT PROFESSOR OF PERIODONTICS

The successful applicant will have at least 1-2 years teaching experience and have completed an accredited graduate education in Periodontics.

Duties include teaching and clinical instruction for Dental Hygiene, Dental and Post-Graduate Periodontics Students, continuing Education and research.

Both positions require eligibility for licensure in Nova Scotia and include one day extra-mural Private Practice privilege. Dalhousie University is an Equal Opportunity Employer. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian Citizens and permanent residents

Enquiries with current Curriculum Vitae should be sent to the following before December 30, 1985.

Dr. Crawford A. Bain
Head, Division of Periodontics
Department of Restorative Dentistry
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia B3H 3J5

THE UNIVERSITY OF ALBERTA FACULTY OF DENTISTRY

Applications are invited for a full-time academic appointment as a Teaching Fellow for a duration of at least one year in the Division of Diagnosis. This position is ideal for anyone completing a Hospital Residency Program with the intent of pursuing a career in academics as an interim before continuing with further graduate education. It would similarly be suitable to anyone with clinical experience who also plans to commence a graduate program the following year as it would allow an early return to scholarly activity.

Salary is commensurate to the range offered to a Hospital Dental Resident. Applicants should be eligible for licensure in the Province. The University of Alberta is an equal opportunity employer but, in accordance with Canadian Immigration requirements this advertisement is directed to Canadian citizens and permanent residents.

All inquiries should be forwarded by March 31, 1986 to:

Dr. C.G. Baker, Chairman,
Department of Stomatology,
Faculty of Dentistry,
University of Alberta,
Edmonton, Alberta, Canada,
T6G 2N8
(403) 432-2403.

THE UNIVERSITY OF ALBERTA FACULTY OF DENTISTRY

The Faculty of Dentistry has a full-time academic position (tenure track) available in the Division of Pathology, Department of Oral Biology. Responsibilities include research, teaching and a clinical and histopathological diagnostic service to the Province. Rank and salary are commensurate with education and experience of an Assistant Professor (\$30,316 - \$43,780) or Associate Professor (\$37,170 - \$55,450). Clinical applicants should be eligible for licensure in the Province. The University of Alberta is an equal opportunity employer. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

All inquiries should be forwarded by January 31, 1986 to:

Dr. J.W. Osborn, Chairman,
Department of Oral Biology,
Faculty of Dentistry,
University of Alberta,
Edmonton, Alberta, Canada,
T6G 2N8
(403) 432-5653.

DALHOUSIE UNIVERSITY Oral and Maxillofacial Surgery FACULTY OF DENTISTRY

Full time position available September 1986. Responsibilities to include undergraduate education, research, some participation in graduate education, and participation in general faculty activities. Opportunity for private practice exists.

The applicant will be expected to have completed training in oral and maxillofacial surgery, and possess or be in the process of becoming a Fellow of the Royal College of Dentists (C). Some experience in oral and maxillofacial surgery education would be desirable.

Dalhousie University is an equal opportunity employer, but in accordance with Canadian immigration regulations, this advertisement is directed to Canadian citizens and permanent residents. Dalhousie University has a policy of affirmative action in hiring qualified women staff.

Interested persons should send curriculum vitae and direct inquiries, prior to April 1, 1985 to:

Dr. D.S. Precious, Head
Division of Oral and Maxillofacial Surgery
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia B3H 3J5
Telephone: 902-424-2280

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Veillez noter que l'index français comprend seulement les sujets d'actualité importants, les articles majeurs et les exposés scientifiques en français.

*Afin de ne pas allonger inutilement les deux index, on a énuméré uniquement dans l'index anglais les articles parus simultanément dans la chronique bilingue **En bref** — **Briefly**. Pour chaque article, la page de la version française est indiquée entre parenthèses.*

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ADC — voir ASSOCIATION DENTAIRE CANADIENNE.

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